Water Technologies & Solutions

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CheckPoint Pharma and CheckPoint^{e}

Portable/On-line TOC Sensors

operation and maintenance manual

1.06 firmware or later

ready for the resource revolution

suez

DLM 97200-03 EN Rev. A

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For technical support, contact Technical Support or your local service provider.
In North America, contact Technical Support at +1 888 245 2595.
In Europe, the Middle East, and Africa, contact
Technical Support at +44 161 864 6800.

To order standards or replacement parts, contact Customer Care
at +1 800 255 6964 or your local service provider.

For a copy of the Declaration of Conformity and ISO 9001 Registration:
Visit our website (Library > Declarations of Conformity)
and (Company > ISO 9001 Certification).

Electronic versions of the Sensor's *Operation and Maintenance Manual* and *Standard Operating Protocols* are available from our website (Library > Manuals).

Identification Records

Sensor serial number: _____
(Appears on label on the left side of the Sensor.)

Date of receipt of Sensor: _____
(This is the warranty start date.)

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Revision History

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Trademarks and Patents

Sievers® and CheckPoint® and are trademarks of SUEZ and may be registered in one or more countries.

Teflon® is a registered trademark of E.I. du Pont de Nemours and Company; Microsoft® and Excel® are registered trademarks of Microsoft Corporation.

The Sensors described in this manual is covered by one or more patents issued to and owned or pending by SUEZ, including the following:

US 6723565 and any of its non-US counterparts

US 8101417 and any of its non-US counterparts

US 8003048 and any of its non-US counterparts

US 9116099 and any of its non-US counterparts

US 9074967 and any of its non-US counterparts

and other patents pending

Confidentiality

The information contained in this manual may be confidential and proprietary and is the property of SUEZ. Information disclosed herein shall not be used to manufacture, construct, or otherwise reproduce the goods disclosed herein. The information disclosed herein shall not be disclosed to others or made public in any manner without the express written consent of SUEZ.

Declaration of Conformity

A copy of the Declaration of Conformity for this product is available on our website.

Standard Limited Warranty

SUEZ warrants its Sievers® products for defects in materials and workmanship. SUEZ will, at its option, repair or replace instrument components that prove to be defective with new or remanufactured components. The warranty set forth is exclusive and no other warranty, whether written or oral, is expressed or implied.

Warranty Term
The SUEZ warranty term is thirteen (13) months ex-works, or twelve (12) months from installation or start up by SUEZ certified service personnel. In no event shall the standard limited warranty coverage extend beyond thirteen (13) months from original shipment date.

Warranty Service
Warranty Service is provided to customers through telephone support, Monday - Friday, from 8:00 a.m. to 5:00 p.m. (Mountain Time), excluding all company and legal holidays. Telephone support is provided for troubleshooting and determination of parts to be shipped from SUEZ to the customer in order to return the product to operation. If telephone support is not effective, the product may be returned to SUEZ for repair or replacement. In some instances, suitable instruments may be available for short duration loan or lease.

SUEZ warrants that any **labor services** provided shall conform to the reasonable standards of technical competency and performance effective at the time of delivery. All service interventions are to be reviewed and authorized as correct and complete at the completion of the service by a customer representative, or designate. SUEZ warrants these services for 30 days after the authorization and will correct any qualifying deficiency in labor provided that the labor service deficiency is exactly related to the originating event. No other remedy, other than the provision of labor services, may be applicable.

Repair components (parts and materials), but not consumables, provided in the course of a repair, or purchased individually, are warranted for 90 days ex-works for materials and workmanship. In no event will the incorporation of a warranted repair component into an instrument extend the whole instrument's warranty beyond its original term.

Consumables (e.g., dilution standards, verification solutions, and UV lamps, etc.) are warranted to the extent of their stated shelf life, provided these items are maintained within the stated environmental limitations. Warranty claims for consumables and verification standards are limited to the replacement of the defective items, prorated from the time of claim to the expiration of shelf life.

Shipping
A Repair Authorization Number (RA) must be obtained from the Technical Support Group before any product can be returned to the factory. SUEZ will pay freight charges, exclusive of any taxes and duties, for replacement or repaired products shipped to the customer site. Customers shall pay freight charges, including all taxes and duties, for all products returning to SUEZ. Any product returned to the factory without an RA number will be returned to the customer.

Limitation of Remedies and Liability

The foregoing warranty shall not apply to defects resulting from improper or inadequate installation, maintenance, adjustment, calibration, or operation by customer. Installation, maintenance, adjustment, calibration, or operation must be performed in accordance with instructions stated in the Operation and Maintenance Manual. Usage of non-recommended maintenance materials may void a warranty claim.

The remedies provided herein are the customer's sole and exclusive remedies. In no event shall SUEZ be liable for direct, indirect, special, incidental or consequential damages (including loss of profits) whether based on contract, tort, or any other legal theory. The Operation and Maintenance Manual is believed to be accurate at the time of publication and no responsibility is taken for any errors that may be present. In no event shall SUEZ be liable for incidental or consequential damages in connection with or arising from the use of the manual and its accompanying related materials. Warranty is valid only for the original purchaser. This Limited Warranty is not transferable from the original purchaser to any other party without the express written consent from SUEZ. SUEZ specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Warnings

English

Warning
This symbol on the instrument indicates that the user should refer to the manual for operating instructions

Warning
This symbol indicates the protective earth terminal (ground) for the Sensor.

Warning
This symbol indicates that to comply with European Union Directive 2002/96/EC for waste electrical and electronic equipment (WEEE), the Sensor should be disposed of separately from standard waste.

Warning
The vial sampling kit contains sharp needles designed to pierce the septa of sample vials. Do not put fingers or inappropriate materials into the vial port.

Warning

Any operation requiring access to the inside of the Sensor, including installation of maintenance items, could result in injury. To avoid potentially dangerous shock or burn, turn off power and, if possible, disconnect from the power supply before opening the Sensor.

Warning

The UV lamp contains mercury and may be considered hazardous material in your local area. Dispose of it in accordance with federal, state, or local government regulations.

Warning

To protect against accidental exposure to ultra-violet radiation, do not operate the UV lamp outside of its protective housing.

Warning

Before replacing the UV lamp, remove the battery from the Sensor and disable the external circuit breaker.

Warning

This is a Safety Class I product. It must be must be attached to a grounded power source.

Warning

If this instrument is used in a manner not specified by SUEZ, the protection provided by the instrument may be impaired.

Warning

Always stop analysis and power off the Sensor before unplugging the power cord or removing the battery.

Warning

This is a Class A product. In a domestic environment, this product may cause electromagnetic interference in which case the user may be required to take adequate measures to correct the interference.

Warning

Equipment adjacent to the Sensor may be subject to electromagnetic interference (EMI).

Warning

To ensure proper Sensor performance, only operate the Sensor in an environment that complies with the Sensor's environmental specifications.

Warning

The calibration kit contains a sharp needle. Do not put fingers or inappropriate materials near the needle.

Warning

Install an external circuit breaker and overcurrent protection if you use power conduit.

Warning

Before shipping the Sensor, remove the battery and drain all water from the Sensor.

Warning

To prevent damage to the instrument, do NOT use the CheckPoint^{e} with samples containing ozone.

Warning

If you experience an issue with the printed circuit assembly (PCA) that contains a lithium battery, please contact Technical Support or your local service provider for return instructions. Whenever changing the lithium battery, observe the correct polarity. Dispose of used batteries according to the manufacturer's instructions and local disposal requirements.

Warning

Before shipping the Sensor, remove the battery and drain all water from the Sensor.

Warning

To prevent damage to the instrument, do NOT use the CheckPoint^{e} with samples containing ozone.

Warning

If you experience an issue with the printed circuit assembly (PCA) that contains a lithium battery, please contact Technical Support or your local service provider for return instructions. Whenever changing the lithium battery, observe the correct polarity. Dispose of used batteries according to the manufacturer's instructions and local disposal requirements.

日本語 (Japanese)

警告
機器についているこの記号は、ユーザーが操作方法のマニュアルを参照する必要があることを示します。

警告
この記号は、センサーの保護用アース端子（接地）を示します。

警告
この記号は、廃電気電子機器（WEEE）に関する EU 指令 2002/96/EC に準拠しており、センサーを標準の廃棄物とは別に廃棄する必要があることを示します。

警告
バイアル サンプリング キットには、サンプル バイアルのセプタムを突き刺すように設計された鋭利なニードルが含まれています。 バイアル ポートには指や不適切な物を入れないでください。

警告

保守用品の設置を含む、センサーの内部にアクセスする必要がある操作によって、怪我をする可能性があります。 感電や火傷の危険性を回避するため、センサーを開く前に電源を切り、できればコンセントから抜いてください。

警告

UV ランプには水銀が含まれており、お住まいの地域では有害物質に指定されている可能性があります。 国、都道府県、および地方自治体の規制に従って、この部品を廃棄してください。

警告

紫外線への偶発的な曝露から身を守るために、保護容器の外で UV ランプを作動させないでください。

警告

UV ランプの交換前に、センサーからバッテリを取り外し、外部ブレーカーを無効化してください。

警告

これは、安全等級 I 製品です。 接地電源に接続する必要があります。

警告

この機器が SUEZ によって指定された方法で使用されなかった場合、機器に組み込まれた保護機能が損なわれることがあります。

警告

電源コードを抜くか、バッテリを取り外す前に、必ず分析を停止して、センサーの電源を切ってください。

警告

これはクラス A の製品です。 屋内環境においては、この製品は電磁干渉を発生することがあり、その場合はユーザーが適切な是正措置を取る必要があります。

警告

センサーの近くにある機器は電磁干渉（EMI）を受ける可能性があります。

警告

センサーの性能を維持するため、センサーの環境仕様に適合する環境でのみセンサーを操作してください。

警告

校正キットには鋭利なニードルが入っています。 指を入れたり、不適切な物をニードルの近くに置かないでください。

警告

電線管を使用する場合、外部ブレーカーと過電流保護を設置してください。

警告

センサーの輸送前に、バッテリーを取り外し、センサーから水を完全に排水します。

警告

機器への損傷を防止するために、オゾンを含むサンプルに CheckPoint^{e} を使用しないでください。

警告

リチウム電池を含むプリント回路アセンブリ（PCA）に問題を抱えている場合、返送方法についてテクニカル サポートまたは最寄りのサービス プロバイダーにお問い合わせください。リチウム電池を交換するときはいつでも、正しい極性になるようによく見てください。使用済み電池は、製造者の指示および地方自治体の廃棄要件に従って廃棄してください。

中文 (Chinese Simplified)

警告
仪器上标有此符号表示用户应参阅手册上的操作说明。

警告
此符号表示传感器的保护性接地端（地线）。

警告
此符号表示符合有关废弃电气和电子设备 (WEEE) 的欧盟指令 2002/96/EC，传感器应与标准废液隔离单独处置。

警告
瓶进样组件中含有锐利的针，用于刺穿样瓶的隔片。请勿将手指或其它不当物放入瓶口。

警告

任何需要接触传感器内部部件的操作，包括安装维修部件，都可能导致人身伤害。为避免潜在可能的电击或灼伤，在打开传感器机箱之前请关闭电源，如有可能请拔下电源线。

警告

UV灯含汞，而汞在您的所在地可能被认为是有害物质。请根据联邦、州或当地政府法规处置此物。

警告

为防止意外暴露于紫外辐射之下，请勿将UV灯置于保护罩外操作。

警告

在更换UV灯之前，请将传感器的电池取出，并禁用外部断路器。

警告

这是安全等级 I 级产品。它必须连接到接地的电源上。

警告

如果此仪器以 SUEZ 未规定的方式使用，此仪器所提供的保护可能会被削弱。

警告

在拔下电源线或取出电池之前，必须先停止分析，并关闭传感器的电源开关。

警告

这是A级产品。在室内环境中，此产品可能会造成电磁干扰，此时用户需要采取适当措施消除电磁干扰。

警告

与传感器相邻的仪器可能会受到电磁干扰(EMI)。

警告

为了确保传感器的正常性能，只可在满足传感器对环境要求的条件下进行操作。

警告

校准装置含有锐利的针。请勿将手指或不当物放在针旁。

警告

如果您使用电源配线管，请安装外部断路器和过电流保护。

警告

在装运传感器之前，请取出传感器的电池，并排空水。

警告

为了防止损坏仪器，请勿将含有臭氧的样品用于CheckPoint®。

警告

如果带有锂电池的印刷电路组件（PCA）出现故障，请联系技术支持部门或您所在地的服务商查询退货事宜。每当更换锂电池时，请注意不要颠倒电池的正负极方面。请按照厂家的说明和当地的废物处理要求弃置废旧电池。

Español

Advertencia
Este símbolo, presente en el instrumento, indica que el usuario debe consultar las instrucciones de uso en el manual.

Advertencia
Este símbolo señala el terminal de protección a tierra (masa) correspondiente al sensor.

Advertencia
Este símbolo indica que para cumplir con la Ley 2002/96/EC de Desecho de Equipamientos Eléctricos y Electrónicos (WEEE, por su sigla en inglés) de la Unión Europea, el Analyzer debe desecharse en forma independiente de los residuos estándar.

Advertencia
El juego de muestreo en viales contiene agujas filosas diseñadas para perforar los septa de los viales de muestra. No ponga los dedos o materiales inadecuados dentro del puerto de viales.

Advertencia
Toda manipulación que requiera acceso al interior del Sensor, incluso la instalación de elementos para mantenimiento, puede ocasionar lesiones. Para evitar el riesgo potencial de descargas eléctricas o quemaduras, apague y desconecte el suministro de energía antes de abrir el Sensor.

Advertencia

La lámpara UV contiene mercurio y puede considerarse material peligroso en su área local. Deséchela de conformidad con la normativa del gobierno federal, estatal o local.

Advertencia

Para proteger contra la exposición accidental a la radiación de rayos ultravioletas, no ponga a funcionar la lámpara UV fuera de su carcasa de protección.

Advertencia

Antes de sustituir la lámpara UV, retire la batería del sensor y desactive el cortacircuitos externo.

Advertencia

Éste es un producto de Seguridad Clase I. Debe contar con una conexión con cable a tierra.

Advertencia

La utilización de este instrumento de un modo no especificado por SUEZ puede afectar la protección que brinda el instrumento.

Advertencia

Siempre detenga el análisis y apague la alimentación del sensor antes de desenchufar el cable de corriente o retirar la batería.

Advertencia

Éste es un producto Clase A. En un ámbito doméstico, este producto puede provocar interferencias electromagnéticas, en cuyo caso el usuario deberá tomar las medidas necesarias para corregir estas interferencias.

Advertencia

El equipamiento contiguo al sensor puede que esté sometido a interferencias electromagnéticas (EMI).

Advertencia

Para asegurar el rendimiento apropiado del sensor, hágalo funcionar solamente en un entorno que cumpla con las especificaciones ambientales para el sensor.

Advertencia

El juego de calibración contiene una aguja filosa. No ponga los dedos o materiales inadecuados cerca de la aguja.

Advertencia

Instale un cortacircuitos externo y una protección contra sobretensión siempre que utilice un conductor de alimentación tipo conduit.

Advertencia

Antes de despachar el sensor, quite la batería y drene toda el agua del sensor.

Advertencia

A fin de prevenir averías en el instrumento, NO utilice el sensor CheckPoint^{e} con muestras que contengan ozono.

Advertencia

Si se presenta un problema con el conjunto de circuito impreso (PCA por su sigla en inglés) que contiene una batería de litio, póngase en contacto con Soporte Técnico o con su proveedor de servicios local para recibir instrucciones sobre la devolución del producto. Siempre que cambie la batería de litio, observe que la polaridad sea la correcta. Deseche las baterías usadas conforme a las instrucciones del fabricante y los requisitos locales sobre el desecho.

Français

Avertissement
Ce symbole situé sur l'équipement indique que l'utilisateur doit se reporter au manuel pour obtenir des instructions d'utilisation.

Avertissement
Ce symbole indique la borne de terre de protection (masse) du capteur.

Avertissement
Ce symbole indique qu'aux fins de conformité avec la directive 2002/96/CE de l'Union Européenne concernant les matériels électroniques et électriques mis au rebut, le capteur doit être jeté séparément des déchets standards.

Avertissement
Le kit d'échantillonnage en flacon contient des aiguilles acérées conçues pour percer le septum des flacons d'échantillon. Ne pas introduire les doigts ni aucun matériel inapproprié dans le port flacons.

Avertissement
Toute intervention nécessitant d'accéder à l'intérieur du capteur, y compris l'installation d'éléments de maintenance, pourrait occasionner des blessures. Pour éviter tout risque de choc électrique ou de brûlure dangereuse, couper l'alimentation et, si cela est possible, déconnecter la source d'alimentation avant d'ouvrir le capteur.

Avertissement

La lampe UV contient du mercure et peut être considérée comme un matériau dangereux dans votre zone locale. La jeter conformément aux réglementations gouvernementales fédérales, nationales ou locales.

Avertissement

Pour éviter toute exposition accidentelle aux rayons UV, ne pas utiliser la lampe UV sans sa coque de protection.

Avertissement

Avant de remplacer la lampe UV, retirer la batterie du capteur et désactiver le coupe-circuit externe.

Avertissement

Ce produit est de catégorie de sécurité I. Il doit être branché sur une source d'alimentation avec mise à la terre.

Avertissement

Si cet instrument est utilisé d'une manière non spécifiée par SUEZ, la protection offerte par l'instrument peut s'en trouver affaiblie.

Avertissement

Toujours arrêter l'analyse et éteindre le capteur avant de débrancher le cordon d'alimentation ou de retirer la batterie.

Avertissement

Ceci est un produit de classe A. Dans un environnement domestique, ce produit peut causer des interférences électromagnétiques, auquel cas l'utilisateur peut être contraint de prendre les mesures adéquates pour y remédier.

Avertissement

Les équipements situés à proximité du capteur peuvent subir des interférences électromagnétiques (EMI).

Avertissement

Pour garantir des performances optimales, utiliser uniquement le capteur dans un environnement conforme aux spécifications environnementales du capteur.

Avertissement

Le kit d'étalonnage contient une aiguille acérée. Éloigner les doigts et tout matériel inapproprié de l’aiguille.

Avertissement

Installez un coupe-circuit externe et un dispositif de protection contre les surtensions si vous utilisez un conduit d’alimentation.

Avertissement

Retirer la batterie et purger l’eau du capteur avant de le transporter.

Avertissement

Pour éviter tout dommage à l’instrument, N'utilisez PAS CheckPoint^{e} avec des échantillons contenant de l'ozone.

Avertissement

Si un problème se présente avec l'ensemble du circuit imprimé (PCA) qui contient une batterie de lithium, contactez l'assistance technique ou votre prestataire de services local pour les instructions de renvoi. Lors du changement de batterie de lithium, observez la polarité correcte. Jetez les batteries usées selon les instructions du fabricant et les exigences locales de mise au rebut.

Deutsch

Warnung
Dieses Symbol auf dem Gerät zeigt an, dass der Benutzer in der Bedienungsanleitung nachschlagen soll.

Warnung
Dieses Symbol zeigt die Masseklemme (Erde) für den Sensor an.

Warnung
Dieses Symbol zeigt an, dass der Sensor zur Einhaltung der EU-Richtlinie 2002/96/EC zur Entsorgung von Elektro- und Elektronik-Altgeräten getrennt vom Normalmüll zu entsorgen ist.

Warnung
Der Röhrchen-Probennahme-Kit enthält spitze Nadeln zum Durchstechen der Septa von Probenröhrchen. Stecken Sie weder Finger noch ungeeignetes Material in den Röhrchenport.

Warnung
Jegliche Tätigkeiten, die den Zugang zum Inneren des Sensors erfordern, einschließlich Installation von Wartungsteilen, können zu Verletzungen führen. Um potenzielle Gefahren wie Stromschlag oder Verbrennungen zu vermeiden, schalten Sie das Gerät aus und trennen Sie den Sensor, wenn möglich, vor dem Öffnen von der Stromversorgung.

Warnung

Die UV-Lampe enthält Quecksilber und kann in Ihrem lokalen Gebiet als Gefahrstoff eingestuft sein. Entsorgen Sie sie gemäß der geltenden Bundes-, Landes- bzw. lokalen Bestimmungen.

Warnung

Betreiben Sie die UV-Lampe zum Schutz vor versehentlicher Exposition durch UV-Strahlung nicht außerhalb ihres Schutzgehäuses.

Warnung

Entfernen Sie vor dem Austausch der UV-Lampe die Batterie aus dem Sensor und schalten Sie den Schutzschalter aus.

Warnung

Es handelt sich um ein Produkt des Sicherheitsklasse I. Es muss an eine geerdete Stromquelle angeschlossen werden.

Warnung

Wenn dieses Gerät anders als von SUEZ festgelegt verwendet wird, kann der vorhandene Schutz, den das Gerät bietet, beeinträchtigt sein.

Warnung

Beenden Sie immer die Analyse und schalten Sie den Sensor aus, bevor Sie das Netzkabel ziehen oder die Batterie entfernen.

Warnung

Es handelt sich um ein Klasse A-Produkt. In einer Wohngegend kann das Produkt Elektromagnetische Beeinflussung verursachen; in diesem Fall muss der Anwender möglicherweise geeignete Maßnahmen zum Beheben der Beeinflussung ergreifen.

Warnung

Geräte in der Nähe des Sensors können Elektromagnetischer Beeinflussung (EMB) ausgesetzt sein.

Warnung

Betreiben Sie den Sensor nur in einer Umgebung, die den betreffenden Spezifikationen entsprechen, um einwandfreie Sensorleistung zu gewährleisten.

Warnung

Der Kalibrierkit enthält eine spitze Nadel. Halten Sie weder Finger noch ungeeignetes Material in die Nähe der Nadel.

Warnung

Installieren Sie einen externen Schutzschalter und einen Überspannungsschutz, wenn Sie ein Leitungsschutzrohr verwenden.

Warnung

Entfernen Sie vor dem Versand des Sensors die Batterie und lassen Sie sämtliches Wasser aus dem Sensor ab.

Warnung

Um eine Beschädigung des Geräts zu verhindern, verwenden Sie den CheckPointe NICHT für Proben mit Ozon.

Warnung

Wenn sich Probleme mit der bestückten Leiterplatte (PCA) ergeben, die eine Lithiumbatterie enthält, wenden Sie sich bitte wegen der Rücksendeanweisungen an den Technischen Support oder an Ihren lokalen Dienstanbieter. Beachten Sie bei jedem Wechsel der Lithiumbatterie die richtige Polung. Entsorgen Sie die gebrauchten Batterien gemäß den Herstelleranweisungen und den örtlichen Entsorgungsbestimmungen.

Italiano

Avvertenza
Questo simbolo sullo strumento indica che l'utente deve far riferimento al manuale delle istruzioni per l'uso.

Avvertenza
Questo simbolo indica il terminale di messa terra protettivo del Sensore.

Avvertenza
Questo simbolo indica che per conformarsi alla Direttiva europea 2002/96/CE sui rifiuti provenienti da apparecchiature elettriche ed elettroniche (WEEE), l'analizzatore deve essere smaltito separatamente dai normali rifiuti.

Avvertenza
Il kit di campionamento fiale contiene aghi taglienti studiati per perforare il setto delle fiale. Non inserire le dita o materiali non adeguati nella porta della fiala.

Avvertenza
Ogni intervento che richiede accesso alla parte interna dell'analizzatore, compresa l'installazione di componenti di manutenzione, potrebbe causare lesioni. Per evitare scosse elettriche potenzialmente pericolose o ustioni, spegnere l'analizzatore e scollegarlo dall'alimentazione prima di aprirlo.

Avvertenza

La lampada UV contiene mercurio e può essere considerata materiale pericoloso nella propria zona. Smaltire in conformità ai regolamenti governativi federali, statali o locali.

Avvertenza

Para proteger contra la exposición accidental a la radiación de rayos ultravioletas, no ponga a funcionar la lámpara UV fuera de su carcasa de protección.

Avvertenza

Prima di sostituire la lampada UV, rimuovere la batteria dal Sensore e disattivare l'interruttore esterno del circuito.

Avvertenza

Questo è un prodotto di Classe di sicurezza I. Deve essere collegato ad una sorgente di alimentazione provvista di messa a terra.

Avvertenza

Se lo strumento viene utilizzato in modo diverso da quello specificato dalla SUEZ, potrebbe essere compromessa la protezione prevista per l'apparecchiatura.

Avvertenza

Interrompere sempre l'analisi e spegnere il sensore prima di scollegare il cavo di alimentazione o rimuovere la batteria.

Avvertenza

Questo è un prodotto di Classe A. In ambiente domestico il prodotto può essere causa di interferenza elettromagnetica, nel qual caso l'utente può essere tenuto a prendere misure adeguate per correggerla.

Avvertenza

L’attrezzatura adiacente al Sensore potrebbe essere soggetta a interferenza elettromagnetica (EMI).

Avvertenza

Per garantire una prestazione adeguata del sensore, utilizzare il sensore solo in un ambiente conforme alle specifiche ambientali dello stesso.

Avvertenza

Il kit di calibrazione contiene un ago tagliente. Non avvicinare le dita o materiali non adeguati all’ago.

Avvertenza

Installare un interruttore esterno per circuiti e protezione da sovracorrente se si usa il condotto di alimentazione.

Avvertenza

Prima di spedire il Sensore, rimuovere la batteria e drenare tutta l'acqua dal Sensore.

Avvertenza

Per evitare danni alla strumentazione, NON usare il CheckPoint^{e} con campioni contenenti ozono.

Avvertenza

In caso di problemi con il circuito stampato che contiene la batteria al litio, contattare l'Assistenza tecnica o il proprio fornire locale per ricevere le istruzioni per il reso. Durante la sostituzione della batteria al litio, controllare la polarità. Disfarsi delle batterie usate secondo le indicazioni del produttore e le disposizioni locali.

Chapter 1 — Introduction

The Sievers CheckPoint® Pharma and CheckPoint^{e} Portable/On-Line TOC Sensors from SUEZ are high-sensitivity sensors used to measure the concentration of total organic carbon (TOC) in water. The CheckPoint Pharma uses stainless steel sample inlet tubing, enabling high-temperature and o-zone compatibility specific to Pharmaceutical industry applications. The CheckPoint^{e} is designed with PEEK sample inlet tubing that produces greater sensitivity pertinent to the Semiconductor, Power, and other industry applications (that do not require high-temperature or o-zone compatibility).

The Sensors are based on the oxidation of organic compounds using UV radiation. The instruments measure the difference in conductivity before and after oxidation of the sample.

The CheckPoint Pharma and CheckPoint^{e} Sensors are easy to operate, with extremely low maintenance, and require no special training or chemical knowledge. The Sensors are calibrated at the factory, and calibration remains stable for approximately six months. Calibration can be performed easily at installation sites with the optional CheckPoint Vial Sampling Kit.

This manual describes typical operational requirements and recommended procedures that are valid for most applications, and that apply to both the CheckPoint Pharma and CheckPoint^{e} Portable/On-line TOC Sensors (which, for the remainder of this manual will referenced as CheckPoint Sensors). Instructions specific to one model or another are noted as such (CheckPoint Pharma or CheckPoint^{e}, as applicable). Special conditions in operating environments may require modifications to the recommendations in this manual. Contact Technical Support or your local service provider.

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Chapter 2 — Menu Overview

Mode	I/O	Setup	Maintenance
Calibration	Analog Outputs*	Output Rate	Diagnostics
TOC	Analog Output 1	Password	Pump
TOC Cal	Enable/Disable Analog 1	Enable/Disable Password	Lamp
TOC Autozero	Set Parameter	Change Password	Conductivity Board
Set Schedule	Set Range	Clock	Save Service Data
Run Autozero	Set Standby	Set Date	4-20 mA*
TOC Match	Set Error	Set Time	Alarms*
Conductivity	Set Warning	Units of Measure	Consumables
Cond Cal	Analog Output 2	Conductivity/Resistivity/Raw Conductivity	Lamp Install
Cond Match/Res Match	Enable/Disable Analog 2	Instrument Name	Pump Install
Flow Rate	Set Parameter	Change Name	Battery Status
Grab Sample	Set Range	LCD Contrast	View Errors
Sys Constants	Set Standby	Language	Remove
View Constants	Set Error	Inverse Display (F1)	
Restore Constants	Set Warning		
	Analog Output 3[⊥]		
	Enable/Disable Analog 3		
	Set Parameter		
	Set Range		
	Set Standby		
	Set Error		
	Set Warning		
	Binary Input*		
	Disable		
	Activate Low/High		
	Alarms*		
	Alarm 1		
	Disable Alarm 1		
	Setup Alarm 1		
	Alarm 2		
	Disable Alarm 2		
	Setup Alarm 2		
	ModBus		
	Enable/Disable ModBus		
	Set IP Address		
	Use DHCP/Enter Fixed IP (F1)		
	Set Net Mask		
	Connect (F1)		

[⊥]Older models of the CheckPoint Sensors only include two 4-20 mA outputs.
*Optional menu features available when I/O configuration is present.

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Chapter 3 — System Specifications

total organic carbon[1]	
Linear Range (CheckPoint Pharma)	0.21 – 1,000 ppb C
Linear Range (CheckPoint^{e})	0.05 – 1,000 ppb C
Instrument Accuracy	± 5% when measuring 500 ppb C of sucrose[2,3]
Precision (CheckPoint Pharma)	The greater of <1% RSD or 0.21 ppb for on-line measurements; ≤3.0% RSD at 500 ppb for grab samples
Precision (CheckPoint^{e})	The greater of <1% RSD or 0.05 ppb for on-line measurements; ≤ 3.0% RSD at 500 ppb for grab samples
Analysis Modes	On-Line (average or timed); Grab (with optional Vial Sampling Kit)
Analysis Time	Selectable: 15 seconds to 8 hours on-line mode; 10 minutes grab mode
Ozone Compatibility (CheckPoint Pharma)	50 ppb O_3 continuous, 200 ppb O_3 for 2 hours a day
TOC Calibration Stability	Typically 6 months
conductivity/resistivity	
Conductivity/Resistivity Range[4] for CheckPoint^{e}	
Non-Temperature Corrected	0.023 µS/cm (43.5 Mohm-cm) to 150 µS/cm (0.00667 Mohm-cm)
Temperature Corrected to 25 °C	0.055 µS/cm (18.24 Mohm-cm) to 113 µS/cm (0.00885 Mohm-cm)
Conductivity/Resistivity Precision	± 0.5% RSD (20 – 40 °C or 68 – 104 °F)
Conductivity/Resistivity Accuracy	± 2.0%[3]
Conductivity/Resistivity Calibration Stability	Typically 6 months
Conductivity/Resistivity Range for TOC[4]	Maximum to 1.4 µS/cm or minimum 0.7 MΩ from CO_2[4]
instrument specifications	
On-Line Sample Pressure	103 – 690 kPa (15 – 100 psig) (1.0 – 6.9 bar)
Low Pressure Samples	-6.9 – 55 kPa (-1.0 – 8 psig) (-0.069 – 0.55 bar) with optional Low Pressure Sampling Kit
Required Sample Line Flow Rate	60 mL/min (high pressure) or 0.5 mL/min (low pressure)
Power Requirements	100–240 ±10% VAC, 60 W, 50/60 Hz or battery
Fuses	Two T 1.6 A/250 VAC (without power conduit)
Sample Temperature (CheckPoint Pharma)	10 to 90 °C (50 to 194 °F)
Sample Temperature (CheckPoint^{e})	10 to 60 °C (50 to 140 °F)
Ambient Temperature (CheckPoint Pharma)	10 to 55 °C (50 to 131 °F)[3]
Ambient Temperature (CheckPoint^{e})	10 to 40 °C (50 to 104 °F)
Normal Operating Environment	Intended for indoor use
Maximum Relative Humidity	Up to 90%, non-condensing (without battery) Up to 80%, non-condensing (with battery)
Maximum Altitude	3000 meters (9,843 ft)
Outputs	Ethernet (Modbus TCP/IP), USB, plus three 4-20 mA, two alarms, and binary input with optional I/O board
Display	LCD
Installation/Overvoltage Category	II
Dimensions (Sensor only)	H: 25.40 cm (10.0 in); W: 30.48 cm (12.0 in); D: 15.24 cm (6.0 in)
Dimensions (Sensor with Vial Sampling Kit)	H: 25.40 cm (10.0 in); W: 45.72 cm (18.0 in); D: 15.24 cm (6.0 in)
Weight (Sensor only)	2.9 kg (6.4 lb) without battery; 3.58 kg (7.9 lb) with battery
Weight (Vial Sampling Kit)	0.6 kg (1.3 lb)
Industrial Ratings	IP 23 enclosure
Safety Certifications	CE, ETL listed. Conforms to UL Std. 61010-1. Certified to CSA C22.2 No. 61010-1

[1] Stated analytical performance is achievable under controlled laboratory conditions that minimize operator and standards errors.
[2] Total measurement accuracy includes separate contributions from both the standards accuracy and the instrument accuracy.
[3] Conductivity and accuracy specifications are met as shown for ambient temperatures from 10 to 40 °C (50 to 104 °F). When calibrated at 40 °C, the following specifications are met at 40 to 55 °C (104 to 131 °F): conductivity accuracy is ± 2.4%, and TOC accuracy is ± 6.7% on 500 ppb C of sucrose.
[4] Sample water quality with a conductivity >1.4 µS/cm may result in reduced TOC accuracy.

Options and Accessories

I/O Board

The optional I/O board provides three analog outputs (TOC or Conductivity/Resistivity, Standby and Error), one binary input (remote start/stop), and two alarms and 24 V supply.

Vial Sampling Kit

The CheckPoint Vial Sampling Kit, which attaches easily to the Sensor, allows users to measure standards and grab samples in vials.

Low-Pressure Sampling Kit

The Low-Pressure Sampling Kit includes Teflon® and stainless steel sampling tubes and a waste bag for collecting zero-pressure samples in the laboratory or fab.

Sample Inlet Filter

The 60 µm sample inlet filter is recommended for on-line sampling.

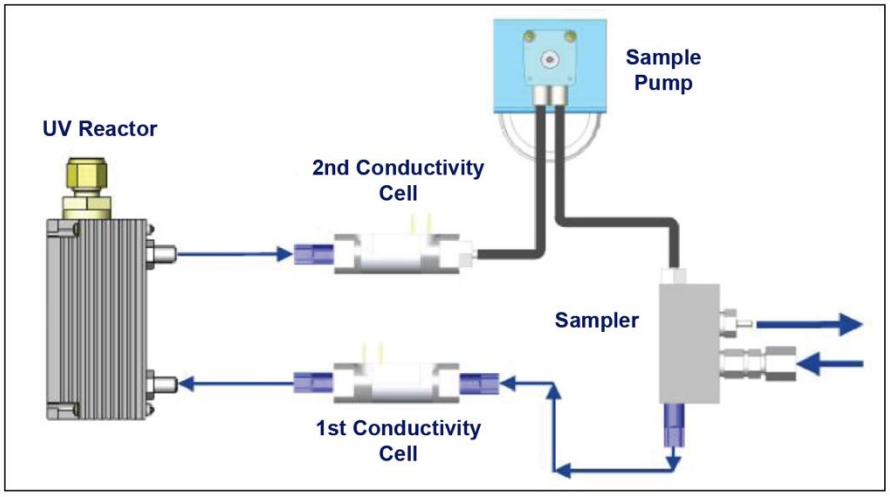


Figure 1: Sensor Schematic

Printer

For a list of SUEZ recommended printers for the CheckPoint instruments, see our website.

Chapter 4 — Installation

Unpack and Inspect the Sensor

Open the shipping box and verify that it contains the following:

- Sievers CheckPoint Pharma (or CheckPoint^{e}) Portable/On-Line TOC Sensor
- Accessory package containing:
    - CheckPoint Pharma and CheckPoint^{e} Portable/On-Line TOC Sensors Operation and Maintenance Manual (CD-ROM)
    - CheckPoint Pharma and CheckPoint^{e} Portable/On-Line TOC Sensors Quick Standard Protocols Operating(CD-ROM)
    - Certificate of Calibration
    - Accessories:
        - Mounting bracket
        - 1/8" sample inlet tubing (with fittings)
        - 1/8" sample waste tubing (2, including “tee” and short tubing to route to tee)
        - AC conduit ground wire, 16-14 American Wire Gauge (AWG)
        - Flathead screwdriver
        - Panel for use with power conduit
        - Terminal block (for wiring power conduit)
        - Stainless steel metric tubing converter (1/4-in-to-6-mm tube)
        - 1/4" to 1/8” reducing adapter
        - Reducing ferrule and knurled nut
        - 1/4" cap for sample line
        - ESD wrist strap
        - Flow rate calibration kit (Bypass port plug; drain tubing; graduated cylinder)
        - Adhesive tubing clip
        - Power Cord
- Optional items:
    - Vial Sampling Kit
    - Low-Pressure Sampling Kit

Optional Installation Equipment

The following equipment also may be required, depending on your installation configuration:

- Insulated wire, 22-12 AWG, rated to 300 Volts for analog and alarm outputs
- Analog (4-20 mA) recorder
- Insulated wire (18-12 AWG, rated to 300 Volts) for AC power conduit
- An external circuit breaker or switch that disconnects both poles of the supply voltage, rated appropriately, if using power conduit.
- PLC or SCADA system for use with Modbus
- 60 micron filter for sample inlet line
- USB printer (For a list of SUEZ recommended printers for the CheckPoint instruments, see our website.)

Step 1: Install the Mounting Bracket (Optional)

If you will be installing the Sensor in a fixed (permanent) position, install the provided mounting bracket in the desired location by fastening screws through the bracket slots. Refer to Figure 46: Mounting Bracket Dimensions on page 106 for bracket dimensions. After the bracket has been mounted, attach the Sensor to the bracket by placing the mounting posts in the wider portion of the bracket cutouts and then pressing down firmly but gently.

NOTE: *If you plan to install the Vial sampling kit during maintenance activities with the Sensor wall mounted, allow at least 30.5 cm (12 in) on the right side of the Sensor for attaching the kit (see Figure 44: Sensor Dimensions and Required Clearances, Front View with Vial Sampling Kit on page 104).*

Avoid direct sunlight and extreme temperatures; operating at elevated temperatures (greater than 40 °C) prevents proper operation, and operating at low temperatures (10 °C) can cause errors in measurements. Also make sure there is at least 1.2 in of clearance between the wall and the back of the Sensor.

If you will not be mounting the CheckPoint, attach the optional adhesive tubing clip to the back of the Sensor, so you can restrain coiled sample cable while the Sensor is in transit.

Figure 2: Mounting the Sensor on the Bracket

Step 2: Install the Power Option

The CheckPoint Sensor can be powered using the included power cable or by installing power conduit.

Using the Sensor with a Power Cord

If you will be using the CheckPoint with a power cord, attach one end of the power cord to the Sensor and the other end to a grounded power source. Make sure the cord is seated securely at both ends.

Figure 3: Installing the Power Cord

Using the Sensor with Power Conduit

To use the CheckPoint Pharma or CheckPoint^{e} TOC Sensor online with power conduit, the Sensor requires a hardware configuration, and conduit must be installed. This section includes instructions for a certified electrician to configure the hardware for use with power conduit.

Warning
This procedure should ONLY be performed by a certified electrician. The following step-by-step instructions are intended to be provided to the electrician as a guideline for converting the CheckPoint for use with power conduit, and to provide CheckPoint with conduit-specific electrical requirements. Install an external circuit breaker and overcurrent protection if you use power conduit.

1. If the power cord is attached, remove it.
2. Remove the fluidics cover by loosening the two screws.

Figure 4: Fluidics Cover and Screw Locations

3. Remove the main cover by loosening the four screws (two on front, two on top; top screws are longer as shown in Figure 5: Cover Screw Sizes and Locations).

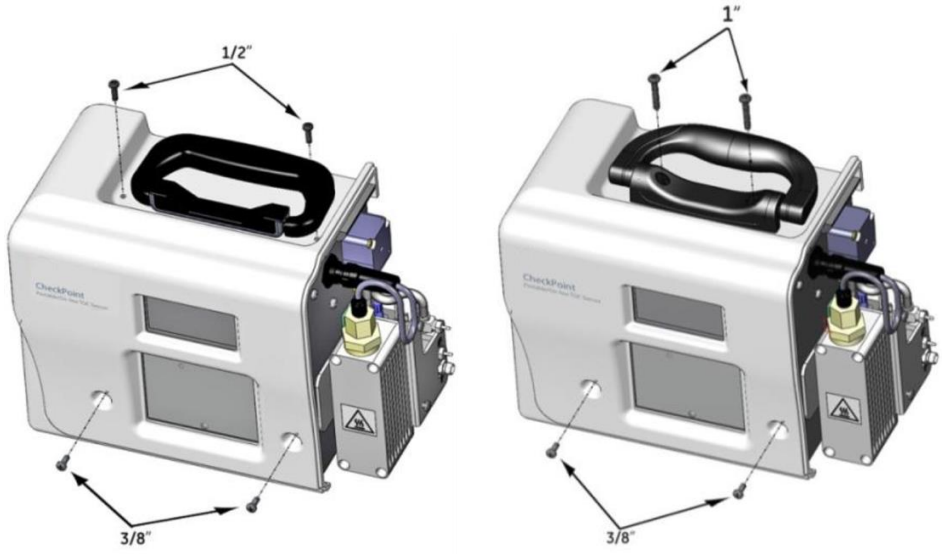


Figure 5: Cover Screw Sizes and Locations

4. Wearing an ESD strap (one is provided in the Accessories Kit), disconnect the three wires in the power entry module from the Sensor:

   - Pull the two connectors out from the left side of the fuse holder.
   - Using a 3/8 in. nut driver, loosen the nut to remove the ground wire.

5. Loosen the four screws on the power module panel and remove the panel from the Sensor (see Figure 6: The Default Power Module Panel and I/O Cover).

Figure 6: The Default Power Module Panel and I/O Cover

6. Attach the new power module panel to the Sensor by securing the screws. Make sure the panel is correctly positioned. The labels should be right-side up so that they are readable.

   In the pass-through port, use a watertight sealing device (or strain relief hub) that is appropriate for your environment.

7. Remove the covers from the two fuse holders and then remove the two fuses (see Figure 7: Preparing to Remove the Fuse Holders).

8. Remove the fuse holders by loosening the two screws and pulling the fuse holders out of the Sensor.

9. Cut the tab connectors off the wires that connect to the right side of the fuse holders (see Figure 7: Preparing to Remove the Fuse Holders).

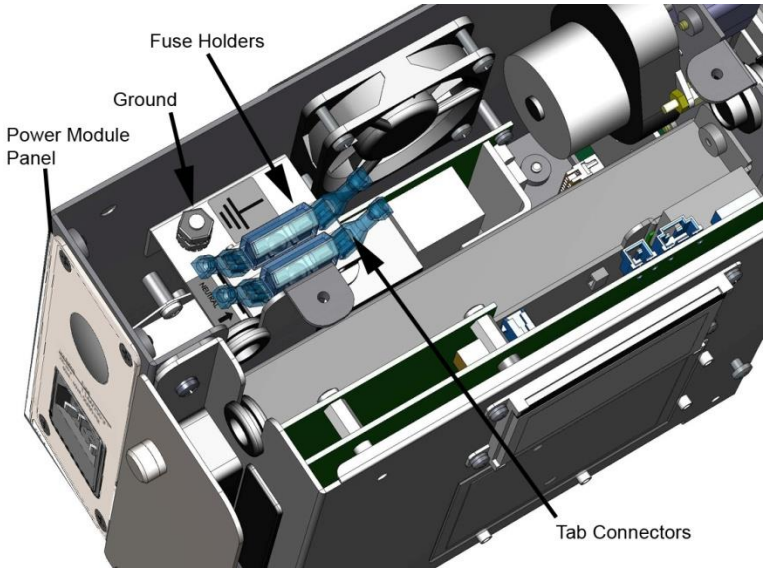


Figure 7: Preparing to Remove the Fuse Holders

10. Strip the wires 1/4 in. (6.35 mm).

11. Secure the power terminal block to the Sensor by tightening the two screws.

12. Connect the existing wires to the power terminal. When viewed from the right side of the Sensor, neutral (blue wire) connects to the left port and line (brown wire) connects to the right port (see Figure 8: Attaching the Existing Power Wires). For each wire, insert the wire into the port and then use a small screwdriver to tighten the screw on the top of the terminal block to secure the wire.

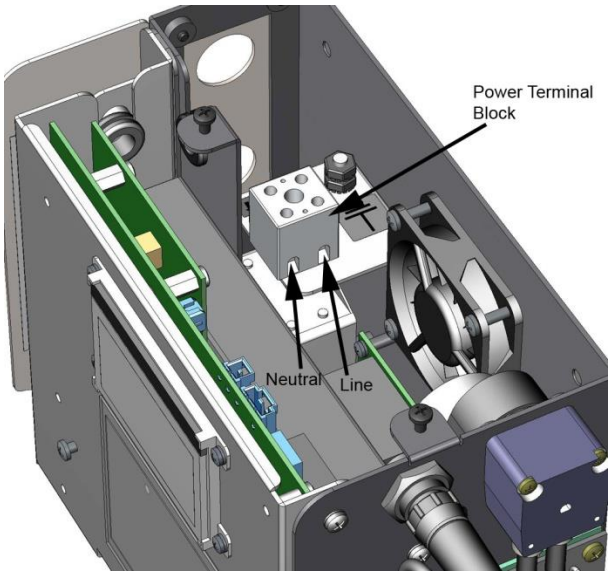


Figure 8: Attaching the Existing Power Wires

13. Route the power wiring into the Sensor through the pass-through port in the power module panel.

    You can also choose to install a strain relief hub at the pass-through port.

NOTE: *Wire should be 18-12 AWG, rated to 300 Volts. The strip length should be 8 mm (.33 in).*

14. Connect the power wires to the terminal block, with the line (brown or black wire) connected to the port on the left and neutral (blue or white wire) connected to the port on the right. See Figure 9: Connecting the Power Wiring (With Conduit). For each wire, insert the wire into the port and then use a small screwdriver to tighten the screw on the top of the terminal block to secure the wire.

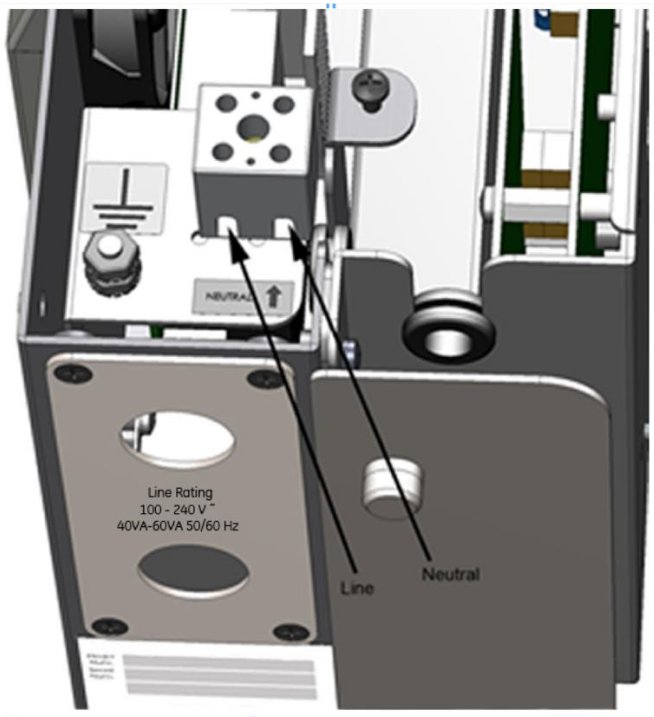


Figure 9: Connecting the Power Wiring (With Conduit)

15. Connect the ground wires to the ground stud; the wire from the power inlet should be on the bottom (see Figure 10: Stacking Order for the Ground Wires).

    A connector for 16-14 AWG wire is provided in the CheckPoint Accessories Kit. If you use wire of a different gauge, you must provide an appropriate connector.

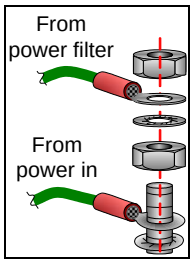


Figure 10: Stacking Order for the Ground Wires

16. If you also are using conduit for I/O cabling, do not replace the Sensor's covers. Proceed to the next step.

    If you are installing I/O cabling but are not using I/O conduit, replace the Sensor's covers and proceed to the next step.

    If you are not using the optional I/O kit, proceed to Step 4: Install the Sample Inlet and Waste Outlet.

Step 3: Install the I/O cabling (Optional)

The Sensor offers a USB port for data download via a USB Flash memory drive and an Ethernet port for data acquisition. The USB port is located behind the I/O Cover. In addition, you can optionally configure the Sensor with three 4-20 mA outputs, two alarms, and one binary input.

If you will not be using conduit for I/O wiring, follow these steps:

1. Open the I/O cover by loosening the thumbscrew.

   Route the Ethernet cable (optional) up through the pass-through port in the I/O cover to the Ethernet port (located behind the I/O cover shown in Figure 6: The Default Power Module Panel and I/O Cover on page 49).

NOTE: *The pass-through port in the I/O cover is designed to house assembled, rather than molded, Ethernet cables. Molded cables are too large for the pass-through port.*

Figure 11: Use an Assembled Cable (left) Rather than a Molded Cable (right)

2. Route the analog out, alarm, and binary input cables up through the pass-through port to the appropriate terminal connectors. Refer to the tables below for pin functionality on the terminal blocks.

3. Close the I/O cover and tighten the thumbscrew.

4. Replace the main cover and secure the four screws.

5. Replace the fluidics cover and secure the two screws.

If you will be using conduit for I/O wiring, follow these steps:

1. If you have not already done so, remove the fluidics cover by loosening the two screws and the main cover by loosening the four screws.

2. Open the I/O cover by loosening the thumbscrews.

3. Route the I/O cables into the Sensor through the power module panel pass-through port. See Figure 13: Routing the I/O Cables (Detail).

4. Route the cables through the first grommet and then through the second grommet, to the I/O terminal blocks (see Figure 12: Routing the I/O Cables). If needed, you can cut a notch in the grommets to make wire manipulation easier.

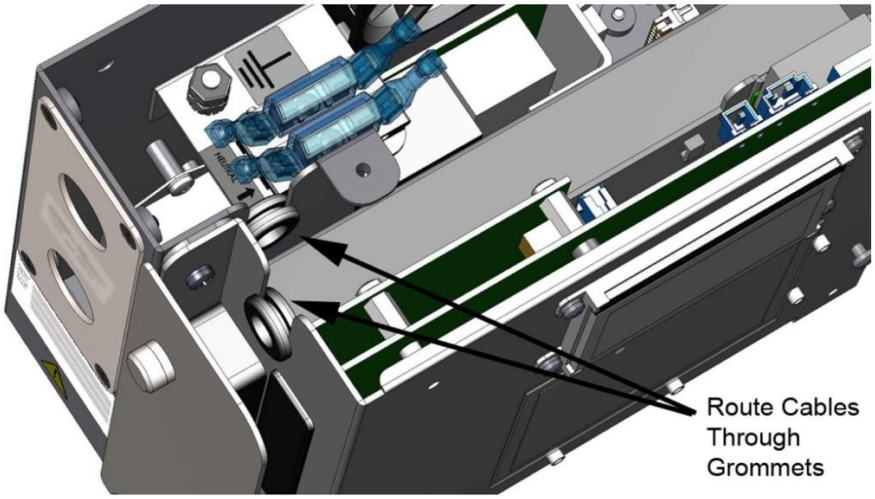


Figure 12: Routing the I/O Cables

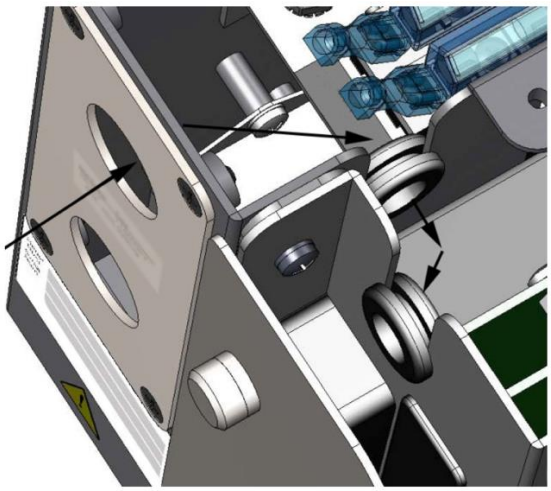


Figure 13: Routing the I/O Cables (Detail)

5. For 4-20 mA, binary input, and alarm wiring, connect the wiring to the appropriate pins. Consult the tables below for pin functionality on each terminal block.

   Wire should be 22-12 AWG, rated to 300 Volts. Strip length should be 8-9 mm (.33 in). To attach the output connections, first remove the terminal block from the I/O board by firmly grasping the

terminal block and pulling it straight out from the board. (Write down the orientation of the terminal block before removing.)

Completely loosen the screw for each pin you are connecting, insert the wire, tighten the screw, and then gently pull on each connection to make sure the connection is secure. Then, replace the terminal blocks. Power isolation level is 240 VAC rms for all terminal blocks. The maximum load for the alarm ports is 30 VDC at 1.0 A. The maximum 4-20 mA load is 600 ohms.

6. Replace the main cover and secure the four screws.

7. Replace the fluidics cover and secure the two screws.

Table 1: 4-20 mA Outputs (TB1)

Pin Number	Output
1	Return 1 (-)
2	4-20 mA 1 (+)
3	Return 2 (-)
4	4-20 mA 2 (+)
5	Return 3 (-)
6	4-20 mA 3 (+)

Table 2: Alarm and Remote Outputs (TB2)

Pin Number	Output
1	Alarm 1 (Common)
2	Alarm 1 (N0)*
3	Alarm 1 (NC)*
4	Alarm 2 (Common)
5	Alarm 2 (N0)*
6	Alarm 2 (NC)*
7	RMT (+)
8	RMT (-)
9	VSW +24V (NI)* operating from AC mains power; +11 to +15 V operating from battery power; maximum current is 100 mA
10	Ground

* NC = normally closed, NO = normally open, NI = non-isolated

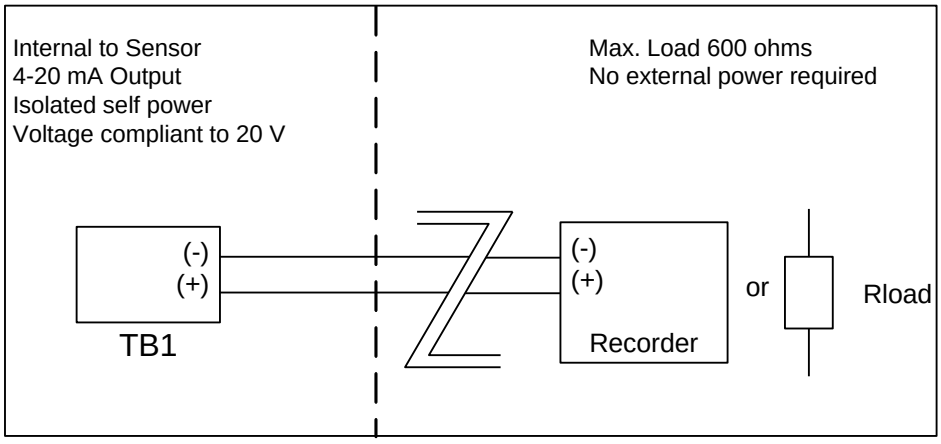


Figure 14: Wiring Diagram for the 4-20 mA Output

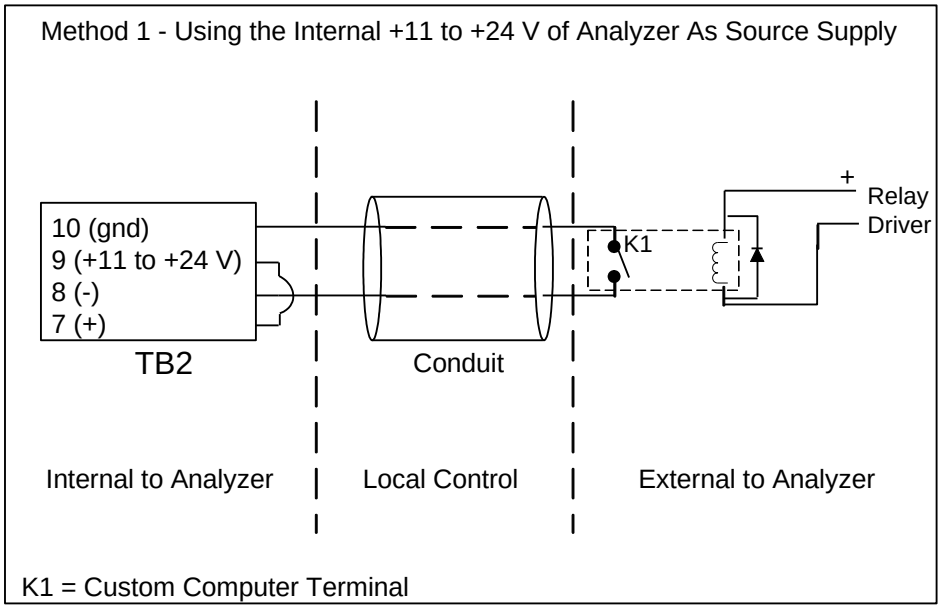


Figure 15: Wiring Option for Binary Input Using Analyzer's Internal Supply

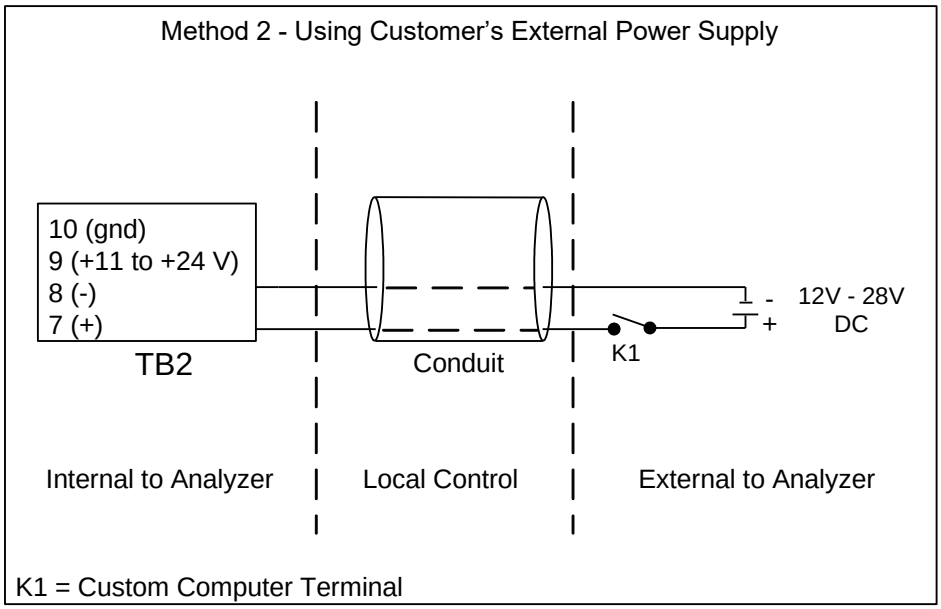


Figure 16: Wiring Option for Binary Input Using External Supply

Step 4: Install the Sample Inlet and Waste Outlet

The Sensor is normally used in On-line mode to measure a flowing sample stream. The flow from the water source should be disabled until the sample inlet tubing is completely installed and the Sensor is ready to begin analysis. To ensure against introducing particulates into the Sensor, install the optional in-line filter on the sample inlet, as well.

1. If you are using the standard inlet provided with the Sensor, attach it to the Sensor and tighten the fitting with a 7/16 in open-end wrench. Tighten the fitting one-quarter turn past finger-tight. Do not over tighten the fitting.

   The accessories kit provides a 1/4" to 1/8" adapter in case you need the additional hardware to connect to existing fluidics connections. The accessories kit also contains a 1/4" to 1/8" reducing ferrule and hand-tight nut.

   To use the reducing fittings, cut the 1/8" fitting off of the sample tube before attaching the fittings (see Figure 17: Proper Orientation of the Reducing Ferrule and Figure 18: The Reducing Ferrule After Installation).

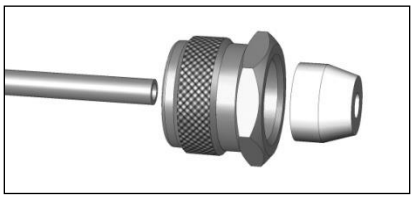


Figure 17: Proper Orientation of the Reducing Ferrule

Figure 18: The Reducing Ferrule After Installation

2. Connect the tubing to the barbs on the **Waste** and **Bypass** ports, and put the other end of the tubing in a suitable waste container or drain. The accessories kit provides a tee to join the tubing from the **Waste** and **Bypass** ports if you want to run a single length of tubing to the drain.

Step 5: Install the Printer

1. Follow the manufacturer's instructions for setting up the printer.

2. Connect the USB cable from the printer to the USB connection on the CheckPoint instrument. (For a list of SUEZ recommended printers, go to our website.)

Chapter 5 — Basic Operation and Menu Options

The buttons on the CheckPoint touch screen provide easy access to all Sensor functions.

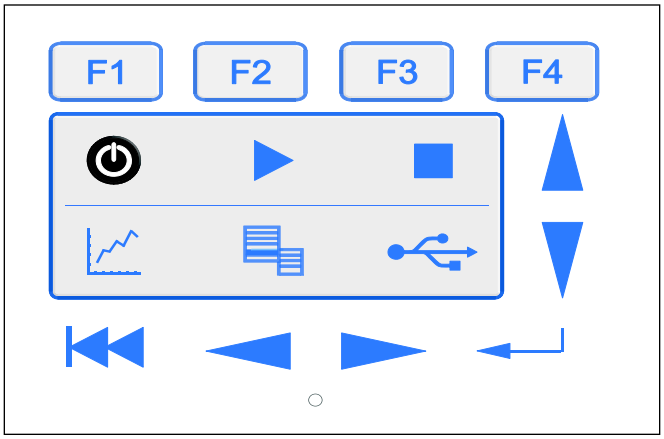


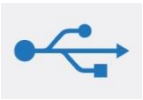
Figure 19: Touch Screen Buttons

Function Keys

The four function keys at the top of the touch screen (see Figure 20: The Function Keys) are context sensitive; depending on which screen is displayed, the function keys provide quick access to various features. The display will always list the function of each key for that particular screen.

Figure 20: The Function Keys

Main Buttons

	Press and hold the power button to power on the Sensor. You can stop pressing the button after the display illuminates. To power off the Sensor, press and hold the button until the Sensor indicates that it is saving settings.
	The **Start Analysis** button starts analysis.
	The **Stop Analysis** button stops analysis.
	The **Display** button cycles through the display mode options. (TOC, TOC Countdown, TOC and Conductivity or TOC and Resistivity, TOC Chart, View Data, and System Information). When the Sensor is in standby, only the View Data, TOC Chart, and System Information screens are available.
	The **Menu** button displays the main menu screen. Menus provide access to configuration screens and advanced functions of the Sensor.
	The **Save** button starts a download of all of the data and system constants on the Sensor to the USB storage device.

Standby Mode

When the Sensor is not in performing on-line, it can be placed in **Standby** mode by pressing the **Stop** button and then pressing **F1**. When the Sensor is in standby mode and running on AC power, the sample pump stops running and the UV lamp remains on. When the Sensor is in standby mode and running on battery power, the sample pump stops running and the UV lamp turns off.

Navigation Keys

The **Horizontal Scroll Bar** scrolls left and right, and the **Vertical Scroll Bar** scrolls up and down. The scroll bars have three modes of operation, which are activated depending on how you press the buttons:

- **Stroke** mode lets you move rapidly by stroking the scroll bar (move your finger or stylus from one end of the scroll bar to the other) in the direction you want to scroll.
- **Auto-repeat** mode lets you press and hold the arrow that corresponds to the direction you want to scroll. Scrolling will accelerate as you hold the button down.
- **Tap** mode lets you tap one of the two arrows to scroll one line in the direction indicated by the arrow.

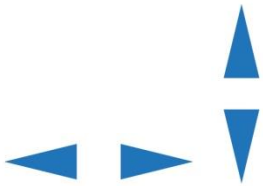


Figure 21: The Horizontal and Vertical Scroll Bars

The **Backspace** key deletes the character to the left of the cursor.

Figure 22: Backspace Key

The **Enter** key is used to select an item or value from a group.

Figure 23: The Enter Key

Starting and Stopping Analysis

To start analysis, press the button. When the Sensor is in On-Line Mode, a flashing triangle displays in the upper right corner of the screen. A confirmation screen is displayed before starting analysis. Press the button followed by **F1** to stop analysis.

If a printer has been installed, the CheckPoint will print the results of each measurement.

To start the Sensor in Grab mode, refer to the Grab Sample Mode section on page 62.

Main Screen Options

To access the **Main** screen, press the **Menu** button on the touch screen. The **Main** screen provides access to the Sensor's settings and maintenance features. When a menu has more options than can be displayed on one screen, an up or down arrow displays on the right side of the screen. Use the button to scroll the highlight pointer on the left side of the screen through the options. When an error has been recorded, the **E** icon displays at the top of the screen.

Press the **Function** key that corresponds to the path you want to follow. To exit the **Main** screen, simply press any button on the touch screen.

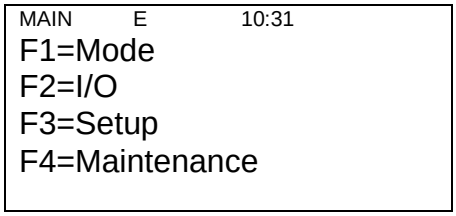


Figure 24: Main Screen

Mode Menu Options

The **Mode** screen provides access to the Sensor's sampling modes and calibration features. To access the **Mode** screen, from the **Main** screen, press **F1**.

Calibration Mode

To display the **Calibration** screen, access the **Main** screen and then press **F1** twice. Under the Calibration option, there are three main functions available. Consult the Calibration Chapter for details on these functions.

Grab Sample Mode

You can run the Analyzer in **Grab Sample** mode when you need to analyze sample in a bottle (or, if you have purchased the optional Calibration kit, in a vial). To enter **Grab Sample** mode, access the **Main** screen, press **F1**, and then press **F2**. Make sure the sample inlet line is configured to draw sample from a vial or bottle before pressing **F1** to start analysis. If needed, press **F4** to stop analysis.

If a printer has been installed, the CheckPoint will print the results of the grab measurement upon completion.

System Constants

From the **Mode** screen, select **View Constants** to view the current Sensor constants; select **Restore Constants** to load constants into the Sensor from a file saved to a USB flash memory drive. You can also import the system constants information into a spreadsheet program for reference, as described in ”Appendix B: Importing Sensor Data into a Spreadsheet Program.”

I/O Menu Options

When configured with the I/O option, the CheckPoint provides a variety of data output options. Access the **I/O** menu by pressing **F2** from the **Main** screen.

Analog Outputs

The CheckPoint provides three analog outputs, which can be configured as follows.

NOTE: *This menu option does not appear if the additional I/O features are not installed in your configuration.*

Instruments built prior to release 1.04 may have only two analog outputs. The available outputs otherwise operate the same.

1. Scroll to Analog Outputs and press .
2. Press **F1** to configure **Analog output 1,** press **F2** to configure **Analog output 2**, or press **F3** to configure **Analog output 3**. (These menu options are not displayed if the Sensor has not been configured with I/O features.)
3. Pressing the **Function** button enters the selected channel’s **Setup** screen. Use the **Vertical Scroll** bar to highlight an option, and then press the button to select that option.

4. Make sure the analog output is enabled by highlighting **Analog Output** to toggle the analog output state between **On** and **Off**.

5. Select **Set Parameter** (TOC, Conductivity/Resistivity, Temperature).

    - Press **F1** to select TOC, press **F2** to select conductivity or resistivity, or press **F3** to select temperature as the analog output parameter. (You can specify whether data should be reported as conductivity or resistivity via the **Setup** menu, **Units of Measure**. Conductivity will be either temperature corrected or raw conductivity as specified in the **Setup** menu.)
    - The **Analog Min** screen displays, indicating the most recent minimum value for the selected parameter. To change the value, use the **Horizontal Scroll** bar to select the field, and use the **Vertical Scroll** bar to change the value in the selected field. Press **F1** to apply the new value.
    - The **Analog Max** screen displays, indicating the most recent maximum value for the selected parameter. To change the value, use the **Horizontal Scroll** bar to select the field, and use the **Vertical Scroll** bar to change the value in the selected field. Press **F1** to apply the new value.

6. Analog MIN/MAX is also available without reselecting **Set Parameter**.

7. The Sensor allows you to set the output level when the Sensor switches into Standby mode, when an error is detected, or when a warning is detected. Select **Standby** to set the Standby output. Select **Error** to set the error output. Select **Warning** to set the Warning output.

    - Use the Vertical Scroll bar to highlight a value, and then press the **Enter** key to select that value.
    - The available values are **0.0 mA, 2.5 mA, 4.0 mA, 20 mA**, and **Hold**. The first four options set the standby or error value to the specified value. The **Hold** option sets the standby or error value to retain the last value output by the Sensor.
    - Make sure you have set different values for **Standby**, **Error**, and **Warning**.

Binary Input

The CheckPoint can be configured with one remote start binary input, as follows:

The **Binary Input** screen shows the current state of the binary input.

1. Scroll to **Binary Input** and press .

2. Press **F1** to toggle the binary input state between **Enabled** and **Disabled**. Set the value to **Enabled** to enable remote start to begin the analysis.

3. Press **F2** to toggle the binary input active state between **High** and **Low**.

    - With Binary Input not connected and state = **Enable,** if active state is set to **High**, the Sensor will begin taking readings and not remain stopped when you press the button. Under the described conditions, if active state is set to **Low**, the Sensor will not begin taking readings when you press the button.

Alarms

The Sensor can be configured with two alarm outputs, as follows:

1. Scroll to Alarms and press the button.
2. Press **F1** to configure **Alarm 1** or press **F2** to configure **Alarm 2**.
3. Press **F1** to toggle the alarm between **Enabled** and **Disabled**.
4. Press **F2** to set up the alarm.
5. Use the **Vertical Scroll** bar to highlight a value, and then press the **Enter** key to select that value. Available values are:

    - **TOC**: the alarm activates when the TOC value exceeds the specified limit.
    - **Conductivity** or **Resistivity**: depending on which unit of measure has been selected, you can set the alarm to activate when the conductivity value exceeds a specified limit or when the resistivity value falls below a specified limit.
    - **TOC trend**: the alarm activates when the TOC trend exceeds a specified limit.
    - **Error**: the alarm activates when an error has been reported.
    - **Standby**: the alarm activates when the Sensor is in standby mode.
    - **Warning**: the alarm activates when a warning has been reported.
    - **Error or Warning**: the alarm activates when either an error or warning has been reported.
6. If you set the alarm to activate on **TOC**, **Conductivity**/**Resistivity**, or **TOC Trend**, the **Alarm Limit** screen displays. Use the scroll bars to enter the value.

Using the Ethernet Connection and Modbus

To export data using the Ethernet port, the Sensor exports data using the Modbus communication protocol. Before data can be exported via Ethernet, you must enable Modbus and configure the Sensor's IP address. The connection can be made using DHCP or a static IP address.

NOTE: *You may need assistance from your network administrator or information technology (IT) department to set the IP address correctly for your network.*

1. Make sure the Ethernet cable is connected to the Sensor. If you will be connecting The CheckPoint to your network or another computer, attach the other end of the Ethernet cable to an Ethernet port on your network or the computer.
2. From the **Main** screen, press the button and then press **F2** to select I/O.
3. Use the button to scroll down to select **Modbus**, and then press the button.
4. Press the button to enable Modbus.
5. Use the button to scroll down to select **Set IP Address** and then press the button.
6. By default the CheckPoint uses DHCP to request an IP address from the server on your network. If you will be using DHCP, press **F2** to apply the setting. If you will be using a fixed IP address, press **F1** and then use the keypad to enter the IP address.
7. Use the button to scroll down to select **Set Net Mask** and then press the button.
8. Use the keypad to enter the net mask, and then press **F1**.
9. Press **F1** to connect. If the Sensor does not connect, try cycling the power to the Sensor and connect again.

Pressing **F4** cancels any changes to the IP address and returns to the **Modbus** screen. Use the **Vertical Scroll** buttons to move between fields, and press the **Enter** key to enter a new value.

Modbus Register Table

The reference addresses in the table below are the values sent over the Ethernet connection.

		Function Code			
		0x02			
Discrete Inputs (read only)					
	Status		1000		5 bits
		New Data		(0)	// bit 0
		Error		(1)	// bit 1
		Warning		(2)	// bit 2
		Standby		(3)	// bit 3
		Alarm1		(4)	// bit 4
		Alarm2		(5)	// bit 5
Coils	(read)	0x01			
	State		2000		2 bits
		Run		(0)	// bit 0
		Stop		(1)	// bit 1
Coils	(write)	0x05			
	Run		2000		
	Stop		2001		
Input Registers (read only)		0x04			
	Instrument Family		3010		// 16-bit unsigned
	Instrument Model		3011		// 16-bit unsigned
	Serial Number		3012		// 16-bit unsigned
	Reading Time – Year		3100		// 16-bit unsigned
	Reading Time – Month		3101		// 16-bit unsigned
	Reading Time – Day		3102		// 16-bit unsigned
	Reading Time – Hour		3103		// 16-bit unsigned
	Reading Time – Minute		3104		// 16-bit unsigned
	Reading Time – Second		3105		// 16-bit unsigned
	Error Type		3200		// 16-bit unsigned
	Error Time – Year		3201		// 16-bit unsigned
	Error Time – Month		3202		// 16-bit unsigned
	Error Time – Day		3203		// 16-bit unsigned
	Error Time – Hour		3204		// 16-bit unsigned
	Error Time – Minute		3205		// 16-bit unsigned
	Error Time – Second		3206		// 16-bit unsigned
	TOC Value IEEE 32-bit float				
	TOC Value Low Word		3300		// 16-bit unsigned
	TOC Value High Word		3301		// 16-bit unsigned
	TOC Units		3302		// 16-bit unsigned
			1 = ppt		
			2 = ppb		
			3 = ppm		
	TOC Trend Value IEEE 32-bit float				
	TOC Trend Value Low Word		3400		// 16-bit unsigned
	TOC Trend Value High Word		3401		// 16-bit unsigned
	TOC Trend Units		3402		// 16-bit unsigned
			1 = ppt/hr		
			2 = ppb/hr		
			3 = ppm/hr		

Conductivity Value IEEE 32-bit float		
Conductivity Value Low Word	3500	// 16-bit unsigned
Conductivity Value High Word	3501	// 16-bit unsigned
Conductivity Units	3502	// 16-bit unsigned
	1 = nS/cm	
	2 = uS/cm	
	3 = mS/cm	
Resistivity Value IEEE 32-bit float		
Resistivity Value Low Word	3600	// 16-bit unsigned
Resistivity Value High Word	3601	// 16-bit unsigned
Resistivity Units	3602	// 16-bit unsigned
	1 = Ω-cm	
	2 = kΩ-cm	
	3 = MΩ-cm	
Temperature Value IEEE 32-bit float		
Temperature Value Low Word	3700	// 16-bit unsigned
Temperature Value High Word	3701	// 16-bit unsigned
Temperature Units	3702	// 16-bit unsigned
	1 = °C	
	2 = °F	
	3 = °K	
Raw Conductivity Value IEEE 32-bit flat		
Raw Conductivity Value Low Word	3800	// 16-bit unsigned
Raw Conductivity Value High Word	3801	// 16-bit unsigned
Raw ConductivityUnits	3802	// 16-bit unsigned
	1 = nS/cm	
	2 = uS/cm	
	3 = mS/cm	
Holding Registers (read/write)	not used	

NOTE: *For some PLCs and systems using Modbus RTU, you may need to offset the register by 1. For example, 3300 would become 3301.*

Setup Menu Options

Output Rate

The CheckPoint makes a TOC measurement every 15 seconds. The output rate can be changed to select longer intervals between measurements, either by averaging the measurements that have been taken in the last interval or by the last measurement for that interval. The output interval can be set from 15 seconds to 8 hours.

Set the output rate as follows:

1. On the **Setup** screen, use the **Vertical Scroll** bar to highlight **Output Rate**, and then press the **Enter** key.

2. Use the horizontal scroll bar to move the cursor between the hour, minute, and second fields, and use the vertical scroll bars to set the value.

NOTE: *When using the CheckPoint Portable/On-Line TOC Sensor in applications with high-temperature samples (>60 °C), the Sensor should be operated in On-Line Average mode with a measurement output rate of at least 5 minutes.*

To change the measurement output rate, press the button, select **Setup** → **Output rate** → **Averaged**, and then use the arrow keys to set the output rate.

Password

You can set a password that limits access to various screens.

1. On the **Setup** screen, use the **Vertical Scroll** bar to highlight **Password**, and then press the **Enter** key.

2. Press **F1** to toggle the password state between **Enabled** and **Disabled**. When you enable the password, you will be prompted to enter a password, as described in Step 4.

3. Press **F2** to change the password.

4. To specify a password, enter three characters. The **Horizontal Scroll** bar selects between the various fields; the **Vertical Scroll** bar changes the value in the selected field. For security purposes, only the value of the currently selected field is displayed, and the other two fields are shown as asterisks (see Figure 25: Entering a New Password).

5. Press **F1** to apply the new password.

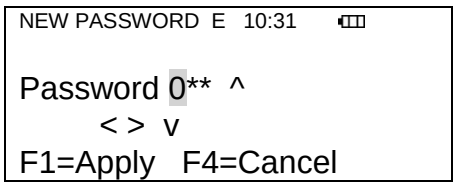


Figure 25: Entering a New Password

When password protection is enabled, access to any menu that will result in a change to the stored system constants will require log in with the password. This restriction includes all menus under the **Mode**, **I/O**, and **Setup** options. Options under **Maintenance** and **Data History**, as well as the **Start** and **Stop** analysis functions, do not require a login.

Clock

From the **Clock** screen, either press **F1** to display the **Set Date** screen or **F2** to display the **Set Time** screen. The **Horizontal Scroll** bar selects between the various date or time fields; the **Vertical Scroll** bar changes the value in the selected field.

Units of Measure

From the **Units** screen, press **F1** to toggle the units of measure between temperature-compensated conductivity (µS/cm), resistivity (MΩ-cm), and RCond (US/CM) Temp (C).

Instrument Name

The **Name** screen displays the current Sensor name, and allows you to change the name. The **Horizontal Scroll** bar moves the cursor left or right through the character. The **Vertical Scroll** bar changes the value of the selected field.

LCD Contrast

The **LCD Contrast** screen allows you to change the contrast setting for the Sensor's display. Use the **Vertical Scroll** bar to change the value of the contrast setting, then press **F1** to apply or **F4** to cancel.

Language Selection

The Sensor supports menu display in English, Simplified Chinese, and Japanese. Use the **Vertical Scroll** bar to select the language and then press the **Enter** button.

Inverse Display

By default, the Sensor's display screen displays white characters on a blue background. You can invert the display to show blue characters on a white background by pressing **F1** on the **Setup** screen.

Maintenance Menu Options

Diagnostics

- **Pump:** Displays the current state of the pump and lets you set the pump state on and off; also provides mechanism to drain water from the Sensor before shipping.
- **Lamp:** Displays the current state of the lamp and lets you set the lamp state on and off.
- **Conductivity Board/Analog Board:** Displays and continuously updates the value of the current channel. The unit of measure displayed depends on the channel selected (µS/cm, °C, or mV). Options are the following: IC conductivity, IC temperature, TC conductivity, TC temperature, Cal resistor 1, Cal resistor 2, and Ground
- **Save Service Data:** Saves data and settings files to the USB flash memory drive.
- **4-20 mA:** Displays the current state of analog output 1, 2, or 3 and lets you output either 4 mA or 20 mA through the selected analog output.
- **Alarms:** Displays the current state of both alarms and lets you set the alarms' state on and off.

Performing any of the diagnostics functions requires that the Sensor be in Standby mode. If the Sensor is performing analysis and a diagnostic option is selected, analysis will be stopped (a confirmation screen will be displayed).

Consumables

The **Consumables** screen displays the current state of the lamp, the pump tubing, and (if it is installed) the battery.

To install new consumables, press **F1,** and then select **F1** to install a new lamp or **F2** to install a new pump. The **Horizontal Scroll** bar selects between the day, month and year fields; the **Vertical Scroll** bar changes the value in the selected field.

View Warnings and Errors

The **View Error** screen displays the Warnings and Errors history, with the most recent warnings and errors at the top of the list. Use the **Vertical Scroll** bar to scroll through the list.

Press **F1** to display the **Remove Errors** screen. To remove the current warning or error, press **F1** and to remove all warnings and errors in the error history list, press **F2**.

A list of possible warnings and errors is shown Step 1: Review Warnings Errors on page 95.

The TOC Chart and Customizing Data Display

Press until TOC Chart appears.

Customizing the Time Range

When viewing the data chart on the Main screen, you can customize the data display by pressing the function keys as follows:

F1 - Display a chart with 20 minutes of data

F2 - Display a chart with 2 hours of data

F3 - Display a chart with 8 hours of data

F4 – display a chart with 24 hours of data

Customizing Data Resolution and the AutoScale Feature

Use the buttons to increase or decrease the concentration (in ppm or ppb) that is plotted on the y-axis of the chart. If you continue to press the buttons, the Sensor cycles through the available ranges until the **AutoScale** feature starts. The available ranges are as follows: 1, 2, 5, 10, 20, 50, 100, 200, and 500 ppb; and 1 and 2 ppm. The TOC trend is calculated from data collected in 15-second intervals. With the **AutoScale** feature, The CheckPoint automatically sets the chart to show the maximum concentration level for the current data set. When AutoScale is active, the AutoScale Arrows display on the right side of the screen. When AutoScale is not active, the AutoScale Arrows do not display.

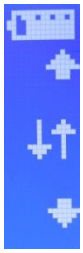


Figure 26: AutoScale Arrows Indicate the AutoScale Feature is On

Figure 27: Absence of AutoScale Arrows Indicate the AutoScale Feature is Off

TOC Deviation Finder

The *TOC Deviation Finder* helps you rapidly identify the exact time of unexpected TOC deviations.

Use the buttons to shift the time range earlier (left arrow) or later (right arrow) to navigate through the data history. This functionality can help you find specific data points quickly.

Next, press the button to toggle the crosshair on and off. The crosshair line displays at the midpoint of the graph. When you press the button, the data point on the crosshair line is displayed at the top of the data table. The tabular view provides more specific details about the data point.

Press the button to toggle between the graphical and tabular data displays.

Data History Export

When you press the button, the Sensor saves files containing the system constants and the data history to a USB flash memory drive. The data history contains the following fields:

Table 3: Data Saved in Exported Files

Field Value	Format
Mode	On-Line or Grab
Date and Time	DD/MM/YYYY HH:MM
TOC	[ppb]
Conductivity or Resistivity	[µS/cm] or [MOhm–cm]
Temp	[C]

Conductivity may be either temperature corrected or raw depending on the **Units of Measure** selection in **Setup**.

For additional information regarding importing this data into a spreadsheet program, refer to ”Appendix B: Importing Sensor Data into a Spreadsheet Program.”

Hardware Considerations

Battery Operation

(This section applies only to a battery/charger previously purchased from SUEZ, prior to its discontinuation.)

The battery and charger system typically enable four to five hours of operation. Battery life may be extended if the Sensor is in Analysis mode only intermittently.

Before using the battery in the Sensor, the battery must be fully charged in the external charger. When you charge the battery for the first time, you should also calibrate the fuel gauge. To calibrate the fuel gauge and charge the battery for use, place the battery in the charger and press the *Calibrate* button on the front of the charger. The blue LED will flash to indicate that the battery is undergoing the recalibration cycle. The external charger will first charge the battery, carry out a controlled discharge, and then recharge the battery. At the end of this cycle, the blue LED will stay constant and your battery is ready for use. This calibration/charging cycle will take approximately seven to ten hours.

Subsequently when you charge the battery, it will take approximately three hours. The battery does not charge while it is inside the Sensor.

When the Sensor is operating on battery power, the battery icon displays in the upper right corner (see Figure 28: The Battery Icon).

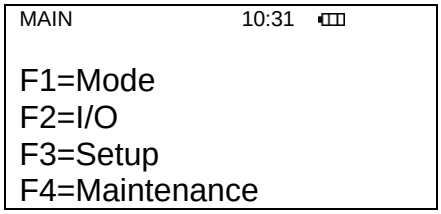


Figure 28: The Battery Icon

When the Sensor is operating under battery power and is analyzing a sample, the battery icon alternates with the analysis icon (see Figure 29: The Analysis Icon).

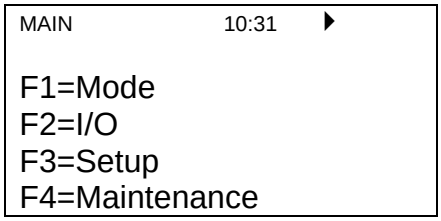


Figure 29: The Analysis Icon

When the battery has been drained of power, the battery icon changes to the dead battery warning icon in the upper right corner (see Figure 30: The Dead Battery Warning Icon). When analysis is not running, this icon flashes once per second. When analysis is running, this icon alternates with the analysis icon once per second.

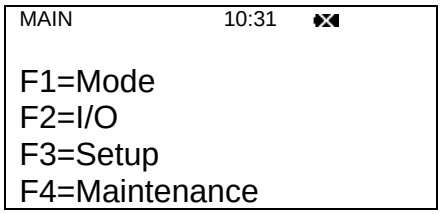


Figure 30: The Dead Battery Warning Icon

NOTE: *Only use the CheckPoint with a battery previously provided by SUEZ.*

LED Indicator

The CheckPoint LED indicator light illuminates when the Sensor is drawing AC power (when it is plugged in to a wall outlet or when it is wired to power conduit). The LED will not illuminate when the Sensor is running on battery power.

Connecting the Vial Sampling Kit

To use CheckPoint to measure from 30-mL vials, you must connect the vial sampling kit as follows:

1. If the Sensor is taking measurements, press the button and **F1**.
2. Disable the flow of sample water to the Sensor.
3. Disconnect the sample inlet fitting from the Sensor's **Inlet** port.
4. Disconnect the tubing from the Sensor's **Bypass** port.
5. (Optional) Disconnect the tubing from the Sensor's **Waste** port if you will be connecting waste tubing directly to the waste container on the vial sampling kit.
6. Loosen the two screws securing the fluidics cover on the right end of the Sensor and connect the vial sampling kit to the Sensor. Slide the notches in the vial sampling kit bracket over the screws and secure the screws. See Figure 31: Connecting the Vial Sampling Kit (waste tubing and container not shown).

Figure 31: Connecting the Vial Sampling Kit (waste tubing and container not shown)

7. Connect the bypass plug onto the **Bypass** port (see Figure 32: The Bypass Plug).

Figure 32: The Bypass Plug

8. Connect the sample inlet tubing from the vial sampling kit to the Sensor's **Inlet** port. Tighten the fitting until it is one-quarter turn past finger-tight.

9. (Optional) If you disconnected the waste tubing in Step 5, connect the short waste tubing to the **Waste** port and place the other end of the tubing in the waste container on the vial sampling kit.

10. If needed, remove the vial port cap from the top of the vial port.

Storing the Sensor

When the Sensor will not be used for a prolonged time, the Sensor should be stored dry. Place the Sensor in *Grab Sample* mode, make sure there is no sample water flowing to the Sensor, and begin a Grab analysis to remove water from the Sensor. Alternatively, the **Pump** option on the **Diagnostics** screen can be used without adding any measurements to the data history.

Remove the battery from the Sensor.

Printing

The Sensor will automatically detect if a printer is connected and will automatically print results for online, grab, cond cal, and TOC cal when they complete. When operating in the On-Line mode, the printer prints out the variables shown on the On-Line display screen. For example, if you are looking at an On-Line display screen that is showing only the TOC result, then the time and only the TOC result prints.

Chapter 6 — Calibration and System Protocols

To calibrate the Sensor, you must use the optional CheckPoint vial sampling Kit. Refer to the Connecting the Vial Sampling Kit on page 74 for instructions on connecting the vial sampling kit. For additional details on the various calibration procedures, see the application note called “Calibration of the CheckPoint Portable/On-Line TOC Sensor,” available from our website.

NOTE: *If you are using the CheckPoint with a battery previously provided by SUEZ, make sure the battery has been fully charged in the external charger before starting calibration.*

Flow Rate Calibration

The flow rate calibration should be performed whenever the pump head is replaced. This procedure assumes CheckPoint is installed on a pressurized water system.

1. If the Sensor is taking measurements, press the button and **F1**.
2. Shut off the sample supply line. Disconnect the tubing from the Sensor’s **Waste** port. If your Sensor has a **Bypass** port, connect the waste line to the **Bypass** port. (Remove any other lengths of tubing and fittings from the waste line.)
3. Connect the short length of waste tubing from the accessories kit to the **Waste** port.
4. Place the other end of the tubing in the graduated cylinder from the accessories kit.
5. Press the button.
6. Press **F1** to select the **Mode** screen.
7. Press **F1** to select **Calibration**.
8. Press **F3** to select **Flow Rate Calibration**.
9. Press **F1** to fill the pump outlet tubing with water (20 seconds). Insert the end of the flow rate calibration drain tubing into a dry 10 mL graduated cylinder. If the waste line has not filled in the allotted time, press **F4** to cancel. Repeat from Steps 8 - 9 until the fluid path has been filled.
10. Press **F1** to start the pump. The pump will operate at twice normal speed for 5 minutes.
11. Record the volume of water collected in the cylinder at the end of this 5-minute period (there should be close to 5 mL). Enter this volume as prompted by the Sensor. Press **F1** to temporarily apply new settings. The Sensor will calculate a new volume per revolution for the pump.

12. To verify the new flow rate calibration, empty the cylinder and replace the flow rate calibration drain tubing in the cylinder. The Sensor will pump water again for 5 minutes; the volume should be close to 5 mL. Press **F1** to accept the new flow rate calibration.

    There are no formal pass/fail criteria for the flow rate calibration, but SUEZ recommends that the calibration be accepted if the volume collected during the second five-minute test is between 4.8 and 5.2 mL.

13. After flow rate calibration is complete, disconnect the tubing from the **Waste** port and reconnect the standard waste tubing.

Conductivity Calibration

Conductivity calibration should be performed after replacing the pump head if the Sensor is used for conductivity or resistivity measurements. Conductivity calibration is not necessary for low level applications where conductivity or resistivity values are not being used (conductivity <0.10 µS/cm or resistivity >10 MΩ with TOC < 20 ppb).

Remove the conductivity calibration standards from the refrigerator and allow them to warm to room temperature (~ 1 hour) before starting calibration. Then, follow these steps:

1. Press the button.
2. Press **F1** to select the Mode screen.
3. Press **F1** to select Calibration.
4. Press **F2** to select Conductivity.
5. Press **F1** to select Conductivity Calibration.
6. Insert the 25 µS/cm HCl standard into the vial port.
7. Press **F1** to start conductivity calibration. Sample is flushed through the Sensor and measurements on the HCl solution begin.

   When measurements are complete, the Sensor displays the mean measured and adjusted temperature-corrected conductivity values. Press **F1** to accept the calibration of **F4** to cancel.

   If a printer has been installed, the CheckPoint will print the results of each measurement upon completion.

   SUEZ recommends that the calibration be applied if the average values are between 24-26 µS/cm and the RSD is 0.5% or less.

8. If you also want to perform a calibration verification, continue with the following steps.
9. Press **F1** to select Calibration.
10. Press **F2** to select Conductivity.
11. Press **F1** to select Conductivity Calibration.
12. Make sure the 25 µS/cm HCl standard is in the vial port. Press **F1**.
13. When the measurements are complete, record the values. Do not apply the calibration.
14. Calculate the Percent Difference via the following equation:

$$\% \text{ Diff} = \frac{\text{Measured Concentration - Expected Standard Concentration}}{\text{Expected Standard Concentration}} \times 100\%$$

15. Acceptance criteria are as follows:
    - RSD values for Cell 1 and Cell 2 are 0.5% or less
    - % Diff values for Cell 1 and Cell 2 are ±2%

TOC Calibration

TOC Calibration should be performed after you have replaced the pump head. Remove the TOC calibration standards from the refrigerator and allow them to warm to room temperature (~ 1 hour) before starting calibration. Then, follow these steps:

1. Press the button.
2. Press **F1** to select the Mode screen.
3. Press **F1** to select Calibration.
4. Press **F1** to select TOC.
5. Press **F1** to select TOC Calibration.
6. Insert the reagent water blank into the vial port.
7. Press **F1** to start TOC Calibration. Reagent water is flushed through the Sensor and measurements on the blank begin.
8. When prompted, remove the reagent water blank and insert the 500 ppb Sucrose calibration standard into the vial port.

9. Press **F1**.

10. The standard is flushed through the Sensor and measurements on the standard begin.

11. When measurements are complete, the Sensor displays calibration results, including the mean TOC values for the blank and 500 ppb sucrose standard (measured) and the expected value (500 ppb plus blank). Press **F1** to accept the calibration or **F4** to cancel. Use the button to scroll through the complete calibration results.

    If a printer has been installed, the CheckPoint will print the results of each measurement.

    SUEZ recommends that the calibration be applied if the TOC of the blank is ≤ 60 ppb, the measured TOC of the 500 ppb standard is between 300-750 ppb, and the RSD of the replicate measurements of the 500 ppb standard is ≤ 3%.

    If a high reagent water blank is observed, this may be a result of a contaminated vial sampling kit. In this case, the kit should be flushed with low TOC water (such as the second reagent water blank) using the grab mode until low TOC values are observed; then the calibration should be repeated.

    The TOC calibration is somewhat dependent on ambient temperature, and it is recommended that the calibration be performed at the same ambient temperature at which the Sensor is normally operated.

12. If you also want to perform a calibration verification, continue with the following steps.

13. Press **F4** until the Mode screen displays.

14. Press **F2** to select Grab Sample.

15. Insert the reagent water blank into the vial port.

16. Press **F1** to begin analysis.

17. After the vial has been analyzed, the results screen is displayed. Record the values of the average and the RSD

18. Press **F4** to continue.

19. Press **F2** to select Grab Sample.

20. Insert the 500 ppb sucrose Calibration standard into the vial port.

21. Press **F1** to begin analysis.

22. After the vial has been analyzed, the results screen is displayed. Record the values of the average and the RSD.

23. Calculate the Expected value as 500 ppb + the average value of the reagent water blank and record the value.

24. Calculate the Percent Difference via the following equation:

$$\% \text{ Diff} = \frac{\text{Measured Concentration - Expected Standard Concentration}}{\text{Expected Standard Concentration}} \times 100\%$$

25. Acceptance criteria are as follows:

    - RSD of the replicate measurements of the 500 ppb standard is ≤ 3%
    - % Diff ±10%

Cleaning the Vial Sampling Kit

After performing the TOC or conductivity calibration, the Vial Sampling Kit should be cleaned prior to storage. The recommended procedure for cleaning the kit after the TOC calibration is as follows:

1. Insert the reagent water blank into the vial port and perform a grab sample analysis.
2. Remove the reagent water blank vial and repeat the grab sample analysis without any vial in the port to dry the calibration kit.
3. Replace the vial port dust cover, remove the calibration line from the Analyzer and connect the line to the storage fitting on the vial sampling kit.

TOC Autozero

Because the CheckPoint calculates TOC from the difference in conductivity measurements before and after UV oxidation, it is critical that the two conductivity cells match. The TOC autozero is an adjustment of the Cell 2 offset to match the conductivity of cell 1 when the UV lamp is off (no oxidation). The autozero can be performed either manually or scheduled for a time in which the water system is relatively stable. The scheduled autozero calibration takes 1 hour, and the manual autozero calibration takes 30 minutes. The Sensor should be used in on-line mode until the readings are stable before performing an Autozero.

Performing a Manual Autozero

When the autozero is performed manually, the lamp is turned back on after the autozero is completed. If analysis is immediately started, the first few measurements may drift as the temperature inside the Sensor warms up.

1. If the Sensor is taking measurements, press the button.
2. Press the button.
3. Press **F1** to select the Mode screen.
4. Press **F1** to select Calibration.
5. Press **F1** to select TOC
6. Press **F2** to select Autozero
7. Press **F2** to select Run Autozero. The Sensor will record conductivity measurements from both cells with the UV lamp off. Once stable readings are obtained, the offset for Cell 2 is adjusted to match Cell 1 and the new offset is verified by repeating the conductivity measurements with the lamp off.

   A message is displayed upon completion of the autozero. If stable conductivity readings were not observed during the calibration, the calibration will be stopped and a warning message displayed.

Scheduling an Autozero

1. Press the button.
2. Press **F1** to select the Mode screen.
3. Press **F1** to select Calibration.
4. Press **F1** to select TOC
5. Press **F2** to select Autozero
6. Press **F1** to select Set Schedule. Enable Autozero if it is disabled. Then, set the Interval (1-7 days) and the time.
7. The date and time for the next scheduled autozero will be displayed. When the CheckPoint is first installed, daily Autozeros are recommended. After a few weeks, the interval can be increased (such as, once a week). The frequency should be set back to daily if the Sensor is moved to a different water system or if the composition of the water system changes.

Conductivity Match

The conductivity match is an adjustment of the offsets for both conductivity cells to match the conductivity/resistivity of a reference meter. To perform this calibration, we recommended that the CheckPoint be installed and operated on the water system equipped with a reference conductivity/resistivity meter for at least 24 hours.

1. Press the button.
2. Press **F1** to select the Mode screen.
3. Press **F1** to select Calibration.
4. Press **F2** to select Conductivity.
5. Press **F3** to select Conductivity Match.
6. Record the average Conductivity/resistivity values from the reference meter and enter this value in the TOC match screen.
7. Press **F1** to accept the new offsets.

It may be necessary repeat the conductivity match periodically.

TOC Match

The TOC calibration described previously is a high level adjustment of the TOC gain. For low-level TOC measurements (< 5 ppb) a more critical calibration is the TOC offset or TOC match. For this calibration, CheckPoint Sensor is installed on a water system along with a reference analyzer. After stable TOC measurements are obtained from both the Sensor and the reference analyzer, an offset is applied to Sensor's TOC measurements to match the reference analyzer. To perform this calibration, we recommend that the Sensor be installed and operated on the water system for at least 24 hours and that a TOC autozero be either scheduled or performed manually. After the autozero, allow the CheckPoint to operate for 2-3 hours prior to performing the match.

1. Press the button.
2. Press **F1** to select the Mode screen.
3. Press **F1** to select Calibration.
4. Press **F1** to select TOC.
5. Press **F3** to select TOC Match.

6. Record the average TOC values from the reference analyzer and enter this value in the TOC match screen.

7. Press **F1** to accept the new TOC offset.

It may be necessary to repeat the TOC match periodically, particularly if the level of TOC or the types of organic compounds in the water system change or if Sensor is moved to a different water system.

Automatic Offset

During on-line measurements, the Sensor monitors the conductivity/resistivity measurement from cell 1. If the conductivity drops below 0.0546 µS/cm (resistivity goes above 18.3 megaohm cm), the offsets for both cells are adjusted to correct the conductivity readings

Chapter 7 — Maintenance

To ensure optimum performance of the CheckPoint, routinely replace Sensor consumables and maintenance items. Refer to the recommended maintenance schedule below. The UV lamp and sample pump tubing (including pump heads) MUST be purchased from SUEZ.

If you need additional assistance, contact Technical Support or your local service provider. Training by a qualified service technician also can be provided.

NOTE: *This chapter covers replacement instructions for routine maintenance items that are replaced on a regular schedule. Instructions for non-routine maintenance items are provided in the packaging for those items.*

For your convenience, the following tracking logs are provided to ensure that consumables are periodically replaced and maintenance periodically performed: Table 4: Consumables Replacement Schedule on page 86 and Table 5: CheckPoint 2-Year Maintenance Worksheet on page 93.

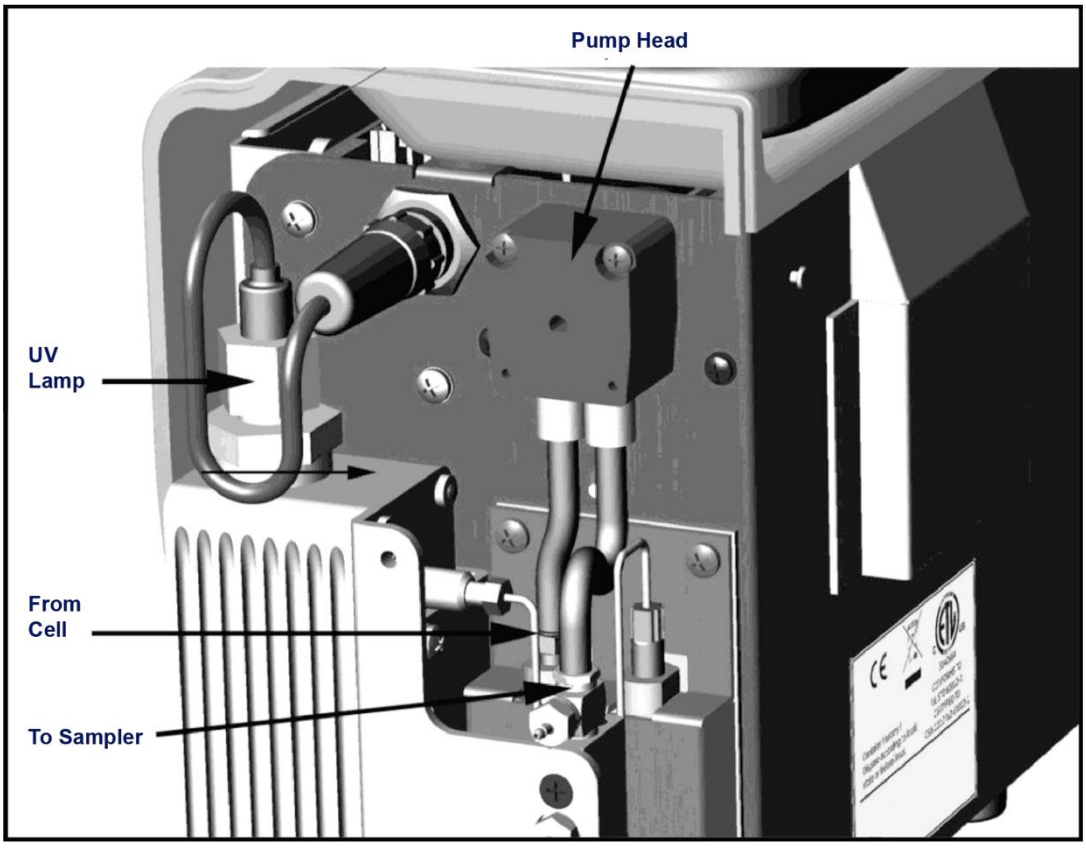


Figure 33: Interior Overview of the Sensor

Table 4: Consumables Replacement Schedule

Description	Typical Operating Life
UV lamp	6 months
Pump tubing (with pump heads)	6 months
Inline filter (optional)	Replace as needed (depends on water quality)

Replacing the Sample Pump Head and Tubing

The tubing for the sample pump loses elasticity over time and must be replaced semi-annually to ensure proper flow rates; the tubing cannot be replaced independently of the sample pump head, and is provided as a kit with new pump heads. The sample pump tubing and pump head must be purchased from SUEZ. Use of tubing from other sources or failure to replace the tubing on the prescribed replacement schedule will affect Sensor functionality. Instructions and illustrations for this procedure also can be found in the Sensor's *Quick Setup Guide*.

Warning

Installation of the sample pump tubing and pump heads requires access to the inside of the Sensor. To avoid potentially dangerous shock, disconnect the power cord before opening the Sensor's front panel.

Have paper towels available during the procedure in case water leaks from the old pump heads during the removal process.

1. If the Sensor is taking measurements, press the button to stop analysis.
2. Power off the Sensor by pressing the button for three seconds. Then, turn off the breaker, unplug the power cord, or remove the battery.
3. Stop the flow of sample water to the Sensor.
4. Disconnect the sample inlet and waste lines from the Sensor.
5. Remove the fluidics cover.
6. Locate the sample pump head.

7. Remove the tubing from the two barbs.

8. Use a small Phillips screwdriver (from the accessories kit) to loosen the two screws that secure the pump head. Remove the screws and retain them.

9. Pull the pump head straight out and off the shaft. Dispose of the old pump head. Use a paper towel to clean any dripping that occurs.

10. Remove the new pump head from the packaging. Slide the pump head onto the shaft and push it all the way back, making sure the set pins are seated properly. You may need to "walk" the pump head onto the shaft. The shaft is a "D" and must align properly with the pumps. Orient the pump head with the shorter tubing on the left. Turn the head until it aligns with the set pins.

11. Replace and secure the two Phillips screws.

Warning

Do not over-tighten the pump head screws: over-tightening the screws could result in damaging the pump head!

12. Reattach the sample pump tubing.

13. Record the installation date for the pump heads on the Maintenance Worksheet. See Table 5: CheckPoint 2-Year Maintenance Worksheet on page 93.

14. If you need to replace the UV lamp, follow the procedure below. Otherwise, close and secure the fluidics cover.

15. Reconnect the sample inlet and waste lines to the Sensor.

16. Restore power to the Sensor and then press and hold the to turn on the Sensor.

17. Enter the installation date for the sample pump head as described in "Setting the Installation Date for New Consumables" below.

18. Perform the Flow Rate Calibration procedure, as described on page 77.

Changing the UV Lamp

The intensity of the UV lamp, particularly the emission of short-wavelength radiation, decreases over time. Replace the lamp after every six months of operation. Instructions and illustrations for this procedure also can be found in the Sensor's *Quick Setup Guide*.

Warning

Installation of the UV lamp requires access to the inside of the Sensor. To avoid potentially dangerous shock, disconnect the power cord and remove the battery before opening the Sensor's case.

Warning

The UV lamp contains mercury and may be considered hazardous material in your local area. Dispose of the UV lamp in accordance with federal, state, or local government regulations.

Warning

Should the UV lamp become broken or damaged, it should be handled in accordance with your organization's toxic waste handling procedure and disposed of in accordance with federal, state, or local government regulations.

NOTE: *A cotton glove for wearing during the installation is included with the replacement UV lamp. Wear this glove to avoid leaving fingerprints on the quartz window of the lamp. Fingerprints absorb UV radiation and decrease the performance of the oxidation reactor. If necessary, use methanol to remove any fingerprints before installing the new lamp.*

To replace the UV lamp:

1. If the Sensor is taking measurements, press the button to stop analysis.
2. Power off the Sensor by pressing the button for three seconds. Then, turn off the breaker, unplug the power cord, and remove the battery, if present.
3. Stop the flow of sample water to the Sensor.
4. Disconnect the sample inlet and waste lines.
5. Remove the fluidics cover.
6. Locate the UV lamp enclosure. The UV enclosure has a brass nut and a gray wire with a black connector extending from the nut.
7. Disconnect the black power connector from the power supply by turning the connector and then carefully pulling the two halves of the plug apart.
8. Loosen the brass nut on the UV enclosure. The nut should only be finger-tight; do not use a wrench.
9. Slowly slide the UV lamp out of the enclosure.
10. Put on the glove provided with the new UV lamp, to avoid leaving fingerprints on the quartz window of the lamp. Remove the new lamp from the packet and the nut and ferrules from the zip-top bag.
11. Slide the nut up the lamp housing (toward the connector cord), and then slide the ferrules up the lamp housing, until they are level with the black heat shrink tubing. Be careful when inserting the lamp into the Sensor as the nut and ferrules may slide off. Refer to Figure 34: Relative Positioning of Components in the UV Lamp Assembly and Figure 35: UV Lamp Ferrule Orientation Detail for proper orientation of the ferrules.

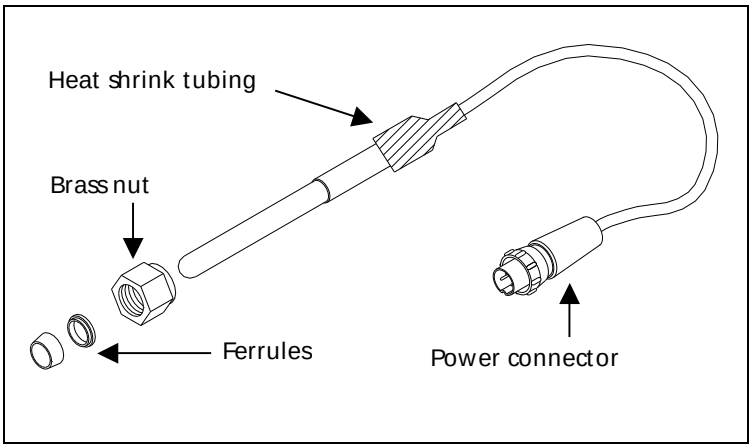


Figure 34: Relative Positioning of Components in the UV Lamp Assembly

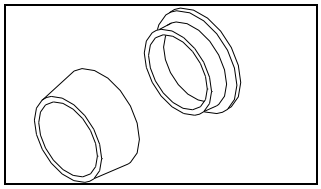


Figure 35: UV Lamp Ferrule Orientation Detail

12. Carefully slide the lamp assembly into the enclosure. Stop if you feel any resistance, and realign the lamp in the reactor. Make sure the black heat tubing is flush against the brass-colored nut.

13. Tighten the brass-colored nut finger-tight. While tightening the nut, make sure the heat shrink tubing remains flush against the nut (Figure 34: Relative Positioning of Components in the UV Lamp Assembly). Do NOT use a wrench.

14. Connect the power connector to the bulkhead by aligning the slot on the connector with the slot on the power supply. Tighten the connector screw. Gently pull on the power connector to make sure it is securely attached to the power supply.

15. Record the installation date for the UV lamp in the Maintenance Worksheet. See Table 5: CheckPoint 2-Year Maintenance Worksheet on page 93.

16. If you need to replace the sample pump head, go to the Replacing the Sample Pump Head and Tubing instructions on page 86. Otherwise, close and secure the fluidics cover.

17. Restore power to the Sensor and then press and hold the to turn on the Sensor.

18. Enter the installation date for the UV lamp as described in "Setting the Installation Date for New Consumables" below.

Changing the Inline Filter Element

To help prevent clogging, a filter may be installed on the sample inlet line. The lifetime of the filter element depends on the level of particles in the water samples. To replace the element, follow these steps:

1. Using two wrenches, loosen the end cap of the filter by turning the wrenches in opposite directions (see Figure 36: Removing the Filter End Caps).

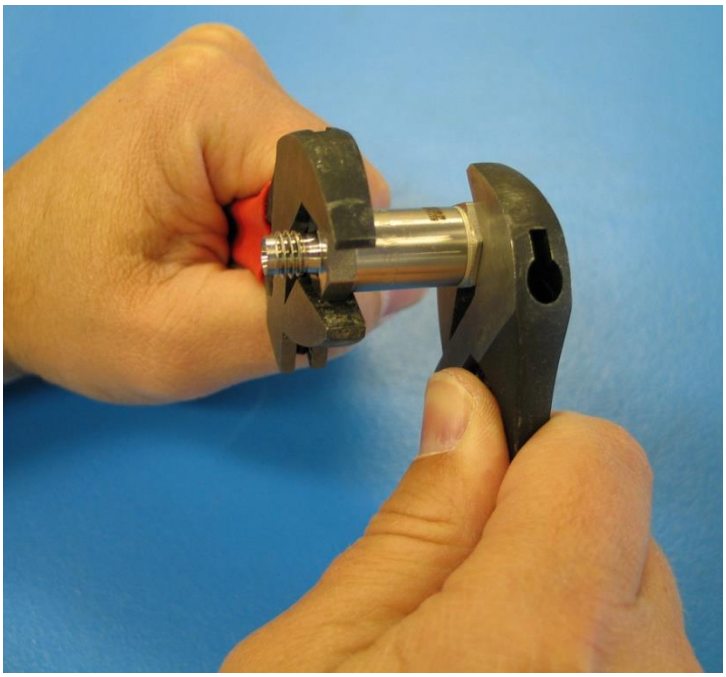


Figure 36: Removing the Filter End Caps

2. Carefully remove the end cap. Be sure not to lose the spring inside the filter (see Figure 37: Opening the Filter) or the washer that sits inside the cap (see Figure 38: The Washer Inside the Filter Cap).

Figure 37: Opening the Filter

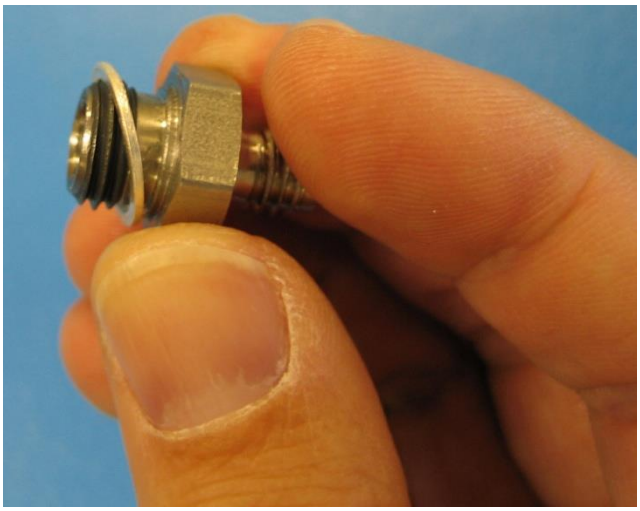


Figure 38: The Washer Inside the Filter Cap

3. Remove the filter element and discard.

4. Remove the new filter element from the packaging.

5. Reassemble the filter. Put the new filter element into the filter (hollow-end first) and put the spring on top of the element. Place the washer inside the cap. For correct stacking order, see Figure 39: Proper Filter Stacking Order.

6. Using the two wrenches, secure the filter cap by turning the wrenches in opposite directions.

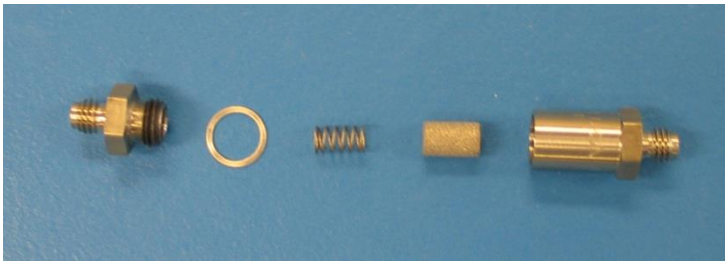


Figure 39: Proper Filter Stacking Order

Setting the Installation Date for New Consumables

The **Consumables** screen displays the current state of the lamp, the pump tubing, and (if it is installed), the battery. From the **Maintenance** menu, select the **Consumables** option.

To install new consumables, press **F1,** and then select **F1** to install a new lamp or **F2** to install a new pump. The **Horizontal Scroll** bar selects between the day, month and year fields; the **Vertical Scroll** bar changes the value in the selected field.

Cleaning the Sensor

You can clean the external housing of the Sensor with a damp cloth using water or non-abrasive cleaners. Turn off power to the Sensor and disconnect it from main power or remove the battery prior to cleaning. Do not spray liquids directly on the Sensor. Wipe dry with a clean, soft cloth.

The screen may be cleaned with a soft cloth or cotton pad. Isopropyl Alcohol may be used, but insure that all solvent residue is removed. Clean any condensation or moisture from any source immediately. If the touch screen becomes fractured or cracked, do not touch it and call technical support.

Cleaning the Vial Sampling Kit

The vial sampling kit should be rinsed before and after use to remove residue from samples or standards that may remain on the wetted parts. This can easily be performed by running grab samples through the sampler from a vial of DI water for 15 minutes or until sample readings stabilize.

Table 5: CheckPoint 2-Year Maintenance Worksheet

Item	Period	Installation Date	Notes
UV Lamp	6 months		
Pump Heads	6 months		
Pump Heads	12 months		
UV Lamp	12 months		
UV Lamp	18 months		
Pump Heads	18 months		
Pump Heads	24 months		
UV Lamp	24 months		

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Chapter 8 — Troubleshooting

This chapter provides the starting point for troubleshooting basic issues with your Analyzer. If you need additional assistance, contact Technical Support or your local service provider.

Step 1: Review Warnings and Errors

The best first step in troubleshooting erratic readings, poor reproducibility (>3%), or other operational problems is to review and print the Errors list. The View Errors screen contains BOTH warnings and errors:

- **Warnings —** Warnings do not stop TOC measurements, *but may indicate that corrective action is required to prevent eventual Sensor shutdown or loss of data.*
- **Errors —** Errors are serious alerts and ALL errors stop TOC measurements to prevent the collection of erroneous data or to protect the Sensor from damage. Corrective action should be taken before the Sensor can resume normal operation.

NOTE: *Both Warnings and Errors are displayed as E###: <Description>. E### numbers lower than 100 are Warnings and E### numbers 100 and higher are Errors.*

List of Warnings

#	Name	Description
1	Service data write	Problem encountered writing service data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
2	Data history write	Problem encountered writing data history to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
3	Conductivity calibration write	Problem encountered writing conductivity calibration data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
4	Conductivity match write	Problem encountered writing conductivity match data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
5	Resistivity match write	Problem encountered writing resistivity match data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.

6	TOC calibration write	Problem encountered writing TOC calibration data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
7	TOC match write	Problem encountered writing TOC match data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
8	Auto-zero write	Problem encountered writing Auto-zero data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
9	Auto-offset write	Problem encountered writing Auto-offset data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
10	Flow rate calibration write	Problem encountered writing flow rate calibration data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
11	Data history queue overflow	Problem encountered writing data history to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
12	Service data queue overflow	Problem encountered writing service data to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
13	UV lamp should be replaced soon	Lamp expiration date is 10 days or less away.
14	Pump tubing should be replaced soon	Pump tubing expiration date is 10 days or less away.
15	Battery needs recalibration	Battery is indicating that it needs to be recalibrated. Put battery in external charger and press the **Recalibrate** button.
16	Invalid lamp install date	Lamp install date is in the future (later than the current instrument time). This can be caused by changing the system clock to an earlier time or entering an invalid time when installing the lamp.
17	Invalid pump install date	Pump install date is in the future (later than the current instrument time). This can be caused by changing the system clock to an earlier time or entering an invalid time when installing the pump.
18	Auto-zero failed	Readings not stable enough to complete Auto-zero.
19	TOC value	Invalid TOC warning. TOC reading is above the 1000 ppb limit.

List of Errors

#	Name	Description
102	Invalid TOC value	Invalid TOC error. TOC reading is negative. Check UV lamp, recalibrate.
103	System constants write	Problem encountered writing system constants to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
104	System constants queue overflow	Problem encountered writing system constants to flash. If the problem persists you may need to change the system board. Contact Technical Support or your local service provider.
105	Battery drawing power on AC	Power supply problem. Battery is showing current draw while AC is connected.
106	Excessive noise on cell 1	Data rejection on cell 1 exceeds 90%, indicates problem with cell or conductivity board.
107	Excessive noise on cell 2	Data rejection on cell 2 exceeds 90%, indicates problem with cell or conductivity board.
108	Analog board communications	Unable to communicate with EEPROM on conductivity board at power on. Check cable connections between conductivity board and system board. If problem persists, replace the conductivity board.
109	System constant read	Bad record encountered reading the system constants file. Contact Technical Support or your local service provider. The most likely cause is unexpected power outage during write (Shutting down without using the **Off** button). System constant will be reset to default value. If this error occurs frequently, this may indicate problems with flash on the system board. You will need to restore constants to correct the problem.
110	Battery over temperature	Battery is reporting over temperature condition. Check that the fan is running the fan outlet and air intakes are not blocked.

Step 2: Basic Troubleshooting Steps

Downloading Service Data

Technical Support or your local service provider may ask to review the Sensor's service data while assisting with troubleshooting. To download the service data, make sure a USB flash memory drive is attached to the Sensor's USB port (located behind I/O cover) and follow these steps:

1. Press the button.

2. Press **F4** to select the **Maintenance** screen.

3. Press **F1** to select the **Diagnostics** screen. When the **Diagnostics** menu displays, the Sensor will prompt you to stop analysis.

4. Use the to scroll down to the **Save Service Data** option, and then press the button.

5. The data files are saved to the USB flash memory drive. If Technical Support or your local service provider has asked to review the file, you can take the flash memory drive to your personal computer and attach the service data file to an email.

   The following files are downloaded:

Table 6: Data Files Saved with "Save Service Data" Option

Example File Name	File Type
SERV_9_2008_03_10_001.csv[1]	service data
CON_9_2008_03_10_001.csv	system constants
DATA_9_2008_03_10_001.csv	data history
CAL_9_2008_03_10_001.csv	calibration history
ERR_9_2008_3_10_001.csv[2]	error history

[1] Depending on the date of download and whether this was the first download of the day, the service data file would be named as follows: SERV_9_2008_03_10_001.csv.
[2] ERR_9_2008_3_10_001.csv, the file name signifies the following: name (error log); serial number; date; and file number for that day.

Problems Connecting to the Sensor Via Ethernet

If your connection to the Sensor is disrupted or difficult to establish, try the following:

- Cycle power to the Sensor
- Confirm that Modbus is enabled (via the I/O menu)

No Flow Conditions

If it appears that sample water is not flowing through the Sensor, verify the no-flow condition by performing a Flow Rate Calibration, as described on page 77.

If water is not flowing through the pump tubing, you may need to back flush the Sensor. Make sure the flow of sample water is disabled, and then remove the sample pump inlet tubing from the barbed fitting on the sample block (see Figure 40: Removing the Sample Pump Inlet Tubing).

Use a water bottle with a nozzle or squeeze bottle to gently force water into the sample pump inlet tubing.

Figure 40: Removing the Sample Pump Inlet Tubing

Checking for Leaks

Leaks and or bubbles in the Sensor may cause noisy data. To safeguard against leaks, confirm that all fittings are tight, and make sure the sample pump inlet tubing is securely seated on the barb on the sample block. Also check for signs of moisture in the fluidics side of the Sensor.

Step 3: Returning the Sensor to SUEZ

Several precautions must be followed to ensure that the Sensor is not damaged during shipment. If the original shipping container has not been retained, contact Technical Support or your local service provider to order shipping supplies. **Under no circumstances, should the Sensor be packed in anything other than the original shipping container.**

To prepare the Sensor for shipping, do the following:

1. If the Sensor is taking measurements, press the button to stop analysis.

2. Stop the flow of sample water to the Sensor.

3. Disconnect the sample inlet, bypass, and waste outlet tubing from the Sensor.
4. Select the **Maintenance** menu.
5. Select **Diagnostics**.
6. Select **Pump**.
7. Turn the pump on and let it run for 10 minutes.
8. Stop the pump.
9. Power off the Sensor by pressing the button.
10. Then, turn off the breaker, unplug the power cord, or remove the battery.

NOTE: *You must remove the battery before shipping the Sensor.*

11. Disconnect any wiring or cables connected to the I/O ports, including an Ethernet cable or 4-20 mA wiring (if applicable).
12. If the Sensor is mounted to a wall bracket, remove it from the bracket by gently but firmly pushing up on the Sensor until it comes free of the bracket.
13. The Sensor is now ready to be packaged in the original shipping materials.

Appendix A: Dimensional Drawings

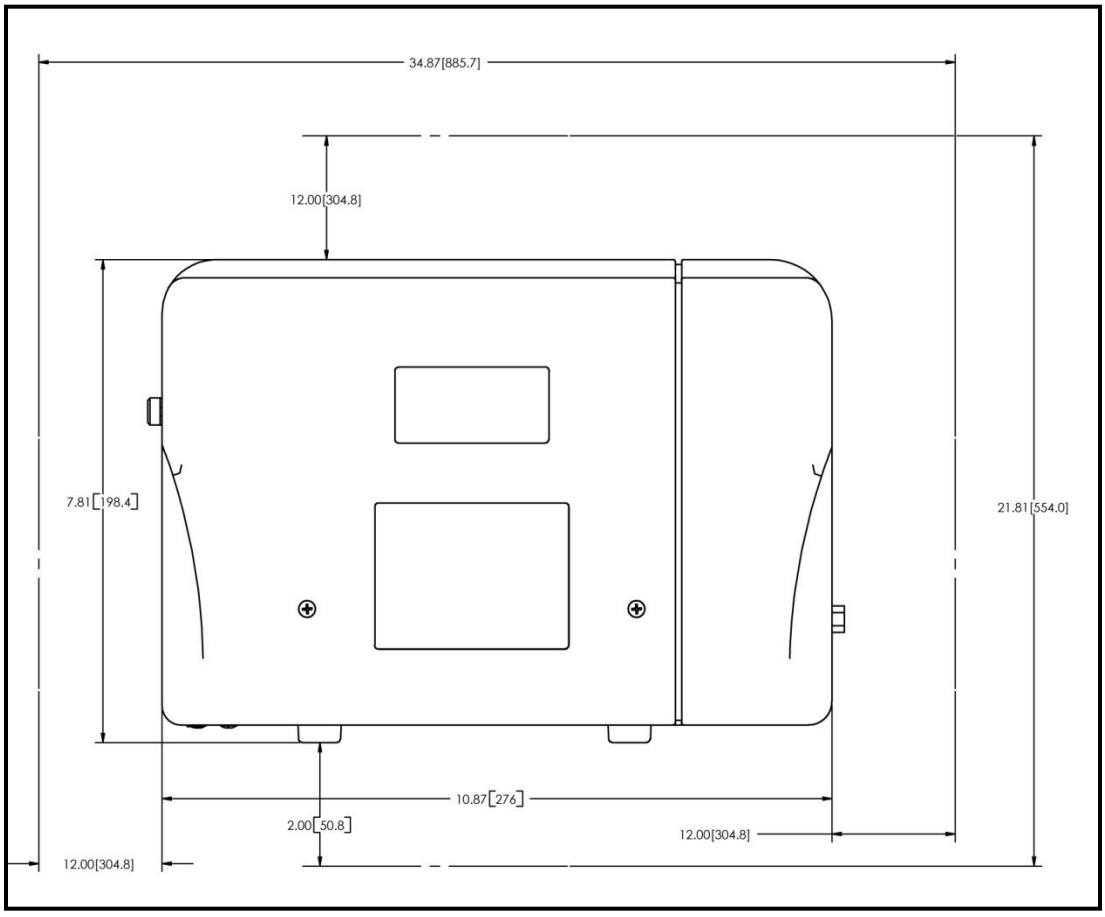

Figure 41: Sensor Dimensions and Required Clearances, Front View

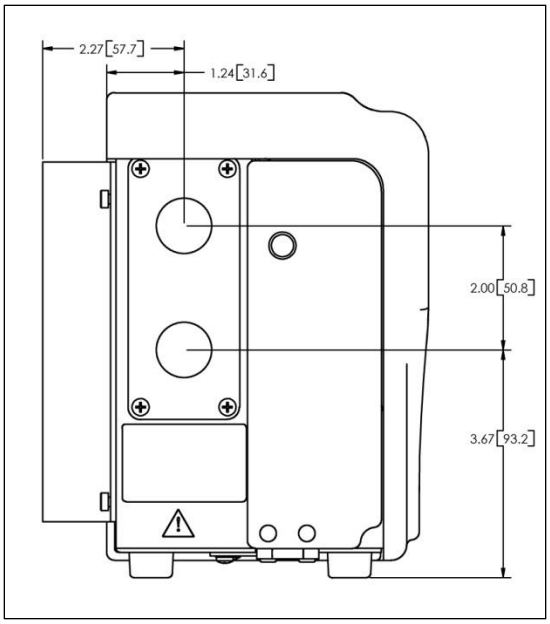

Figure 42: Sensor Dimensions and Required Clearances, Left Side View

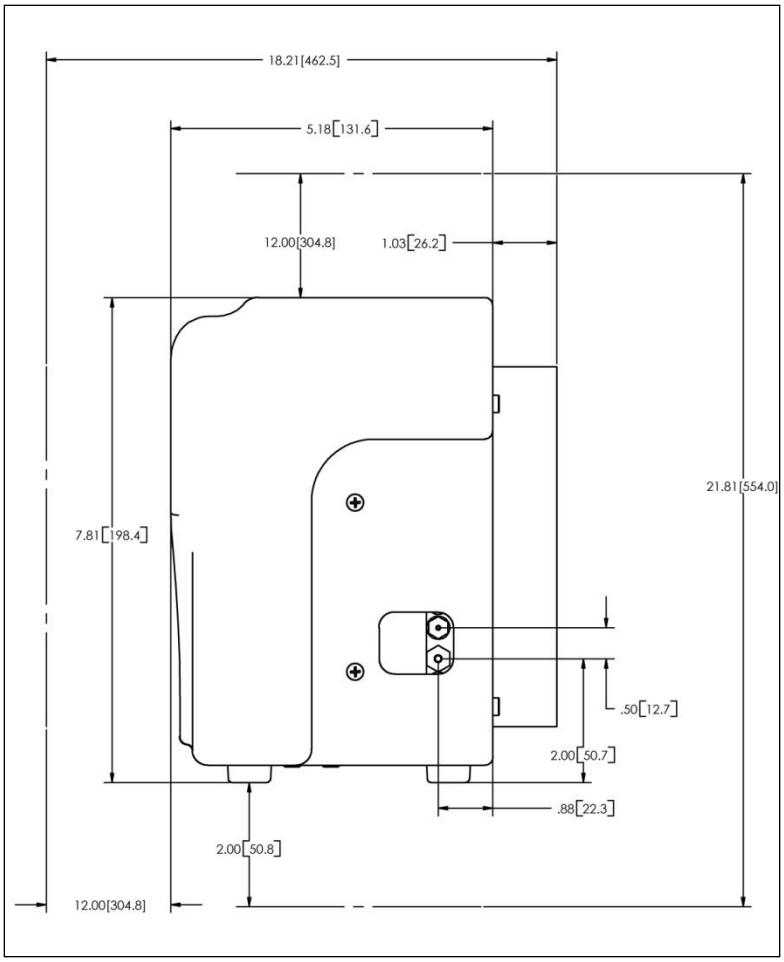

Figure 43: Sensor Dimensions and Required Clearances, Right Side View

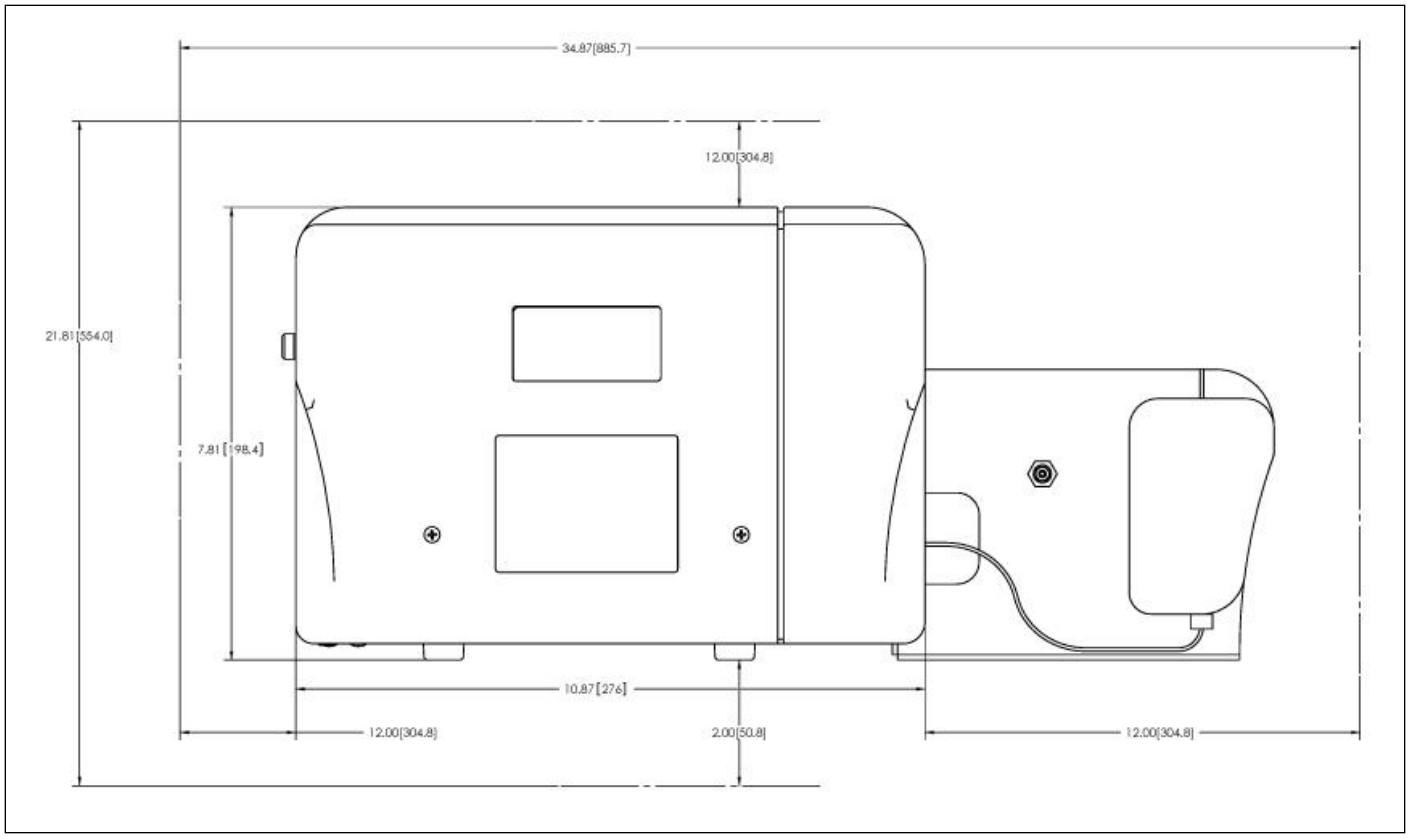

Figure 44: Sensor Dimensions and Required Clearances, Front View with Vial Sampling Kit

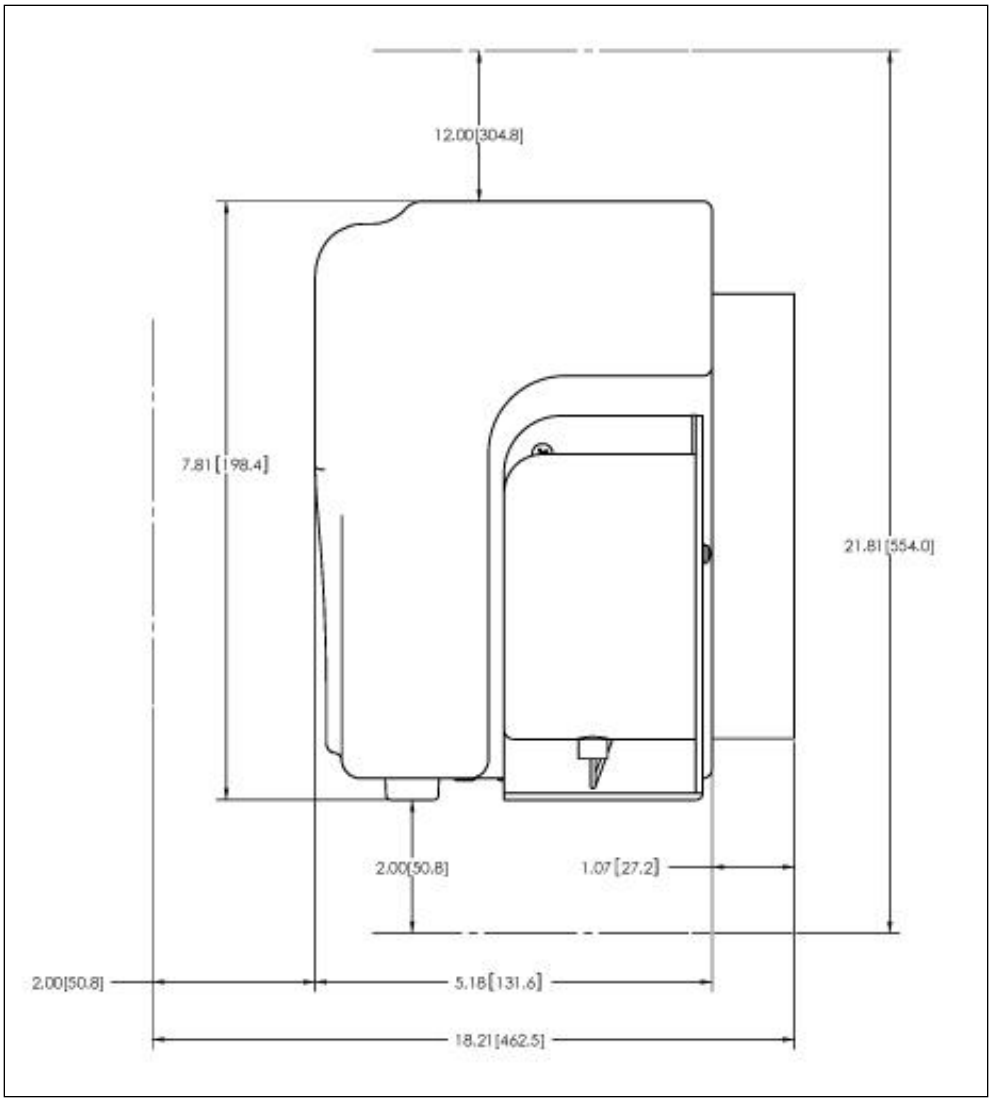

Figure 45: Sensor Dimensions and Required Clearances, Side View with Calibration Kit

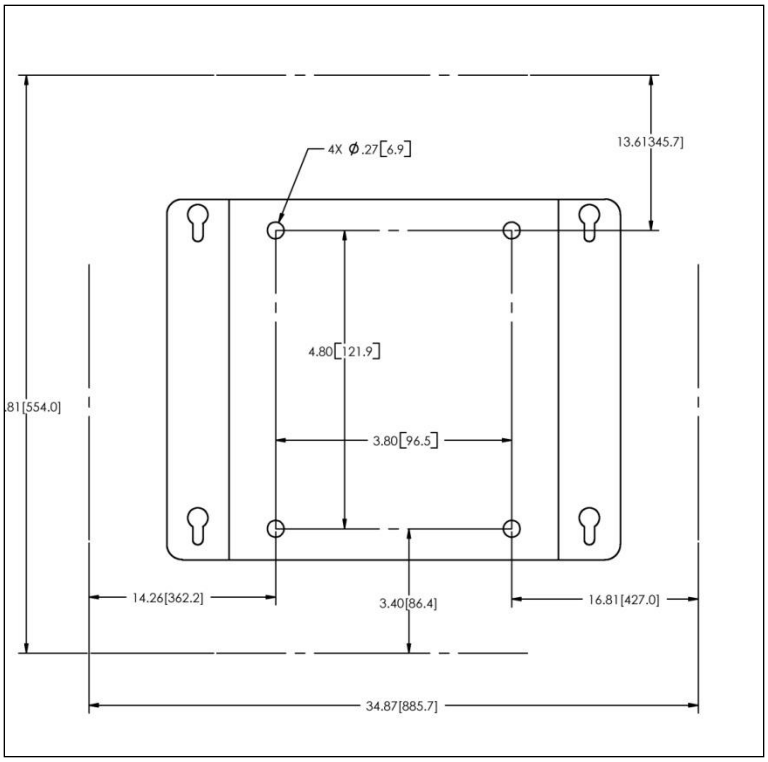

Figure 46: Mounting Bracket Dimensions

Appendix B: Importing Sensor Data into a Spreadsheet Program

This section describes how to export data from the CheckPoint Pharma or CheckPoint^{e} Sensor to a USB drive, and then import this data into a spreadsheet program.

The Sensor exports data in a comma-delimited text format to create a .csv file that can be imported into many spreadsheet or database programs. A common application involves exporting data from the Sensor and importing the data into Microsoft® Excel®.

To export data from the Sensor

1. Export data to the Sensor's USB port and capture the data on a USB flash memory drive.

   Insert a USB drive into the Sensor's USB port (Figure 47: USB Port, Located Behind I/O Cover), and then on the Sensor's screen, press the button. The Sensor saves files containing the system constants and the data history to a USB flash memory drive.

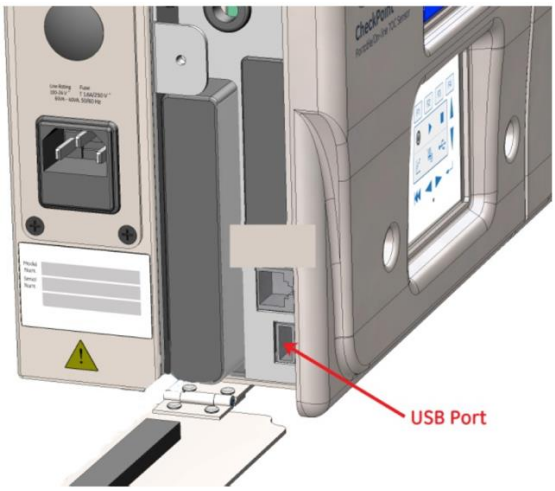

Figure 47: USB Port, Located Behind I/O Cover

To import data into Microsoft Excel

1. After exporting the data, remove the USB drive from the Sensor and attach it to your computer's USB port. The USB drive should appear in your available drive list as a "removable media drive."
2. On your computer, launch Microsoft Excel.
3. Select **File → Open**.

4. Set the **Files of type** drop-down menu to **All Files (*.*)**.
5. Browse to the file containing the data exported from the Sensor and click **Open**. The USB flash drive displays as a “Removable Disk” in the list of available drives.
6. If Excel opens the data in a spreadsheet, you do not need to continue with the next steps. You can work with the file as you would any other Excel file.
7. Depending on the version of Microsoft Excel you have, Microsoft Excel may automatically start the “Text Import Wizard” to help you create a spreadsheet from the data in the file.
8. If the “Text Import Wizard” dialog box appears (Figure 48: Text Import Wizard – Step 1 of 3), verify that **Delimited** is selected, and then click the **Next** button.

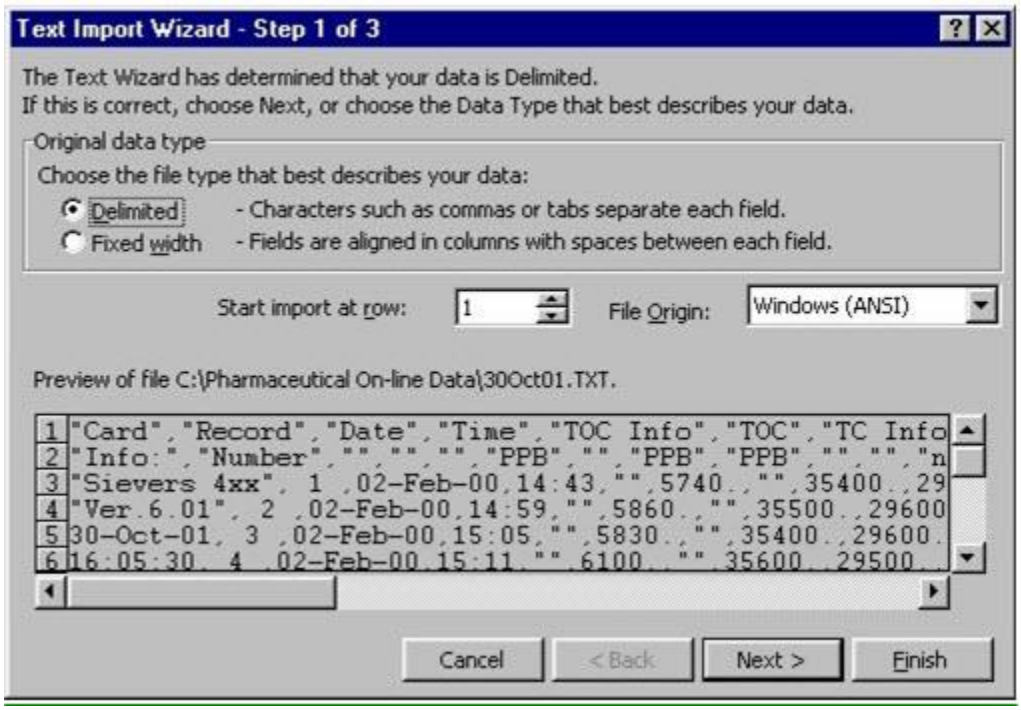
Text Import Wizard - Step 1 of 3
The Text Wizard has determined that your data is Delimited.
If this is correct, choose Next, or choose the Data Type that best describes your data.
Original data type
Choose the file type that best describes your data:
Delimited - Characters such as commas or tabs separate each field.
Fixed width - Fields are aligned in columns with spaces between each field.
Start import at row: 1
File Origin: Windows (ANSI)
Preview of file C:\Pharmaceutical On-line Data\30Oct01.TXT.
1 "Card","Record","Date","Time","TOC Info","TOC","TC Info
2 "Info:","Number","","","","PPB","","PPB","PPB","","","n
3 "Sievers 4xx", 1 ,02-Feb-00,14:43,"",5740.,"",35400.,29
4 "Ver.6.01", 2 ,02-Feb-00,14:59,"",5860.,"",35500.,29600
5 30-Oct-01, 3 ,02-Feb-00,15:05,"",5830.,"",35400.,29600.
6 16:05:30, 4 ,02-Feb-00,15:11,"",6100.,"",35600.,29500.
Cancel
< Back
Next >
Finish

Figure 48: Text Import Wizard – Step 1 of 3

9. Verify that the **Comma** check box is selected, to identify the file as being comma-delimited (Figure 49: Text Import Wizard – Step 2 of 3).

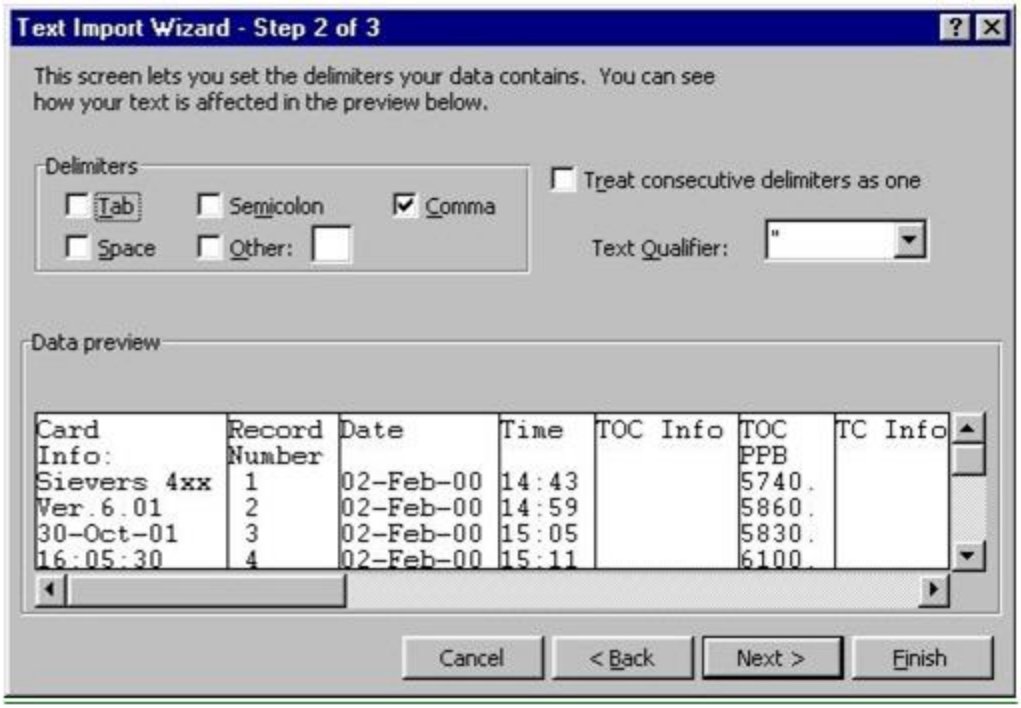

Figure 49: Text Import Wizard – Step 2 of 3

10. Microsoft Excel shows a preview of the data that will be imported. You can highlight a column and assign a Column data format (Figure 50: Text Import Wizard – Step 3 of 3). Click **Finish** to continue.

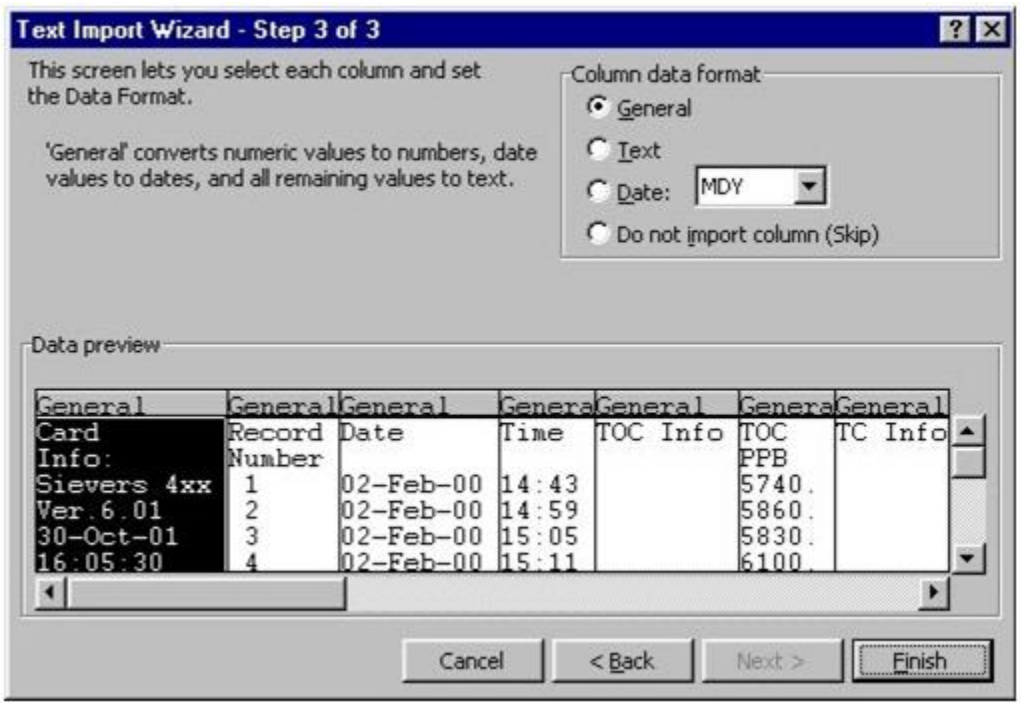

Figure 50: Text Import Wizard – Step 3 of 3

A new spreadsheet containing your exported data opens. You can now modify the document as you would modify any other Microsoft Excel file.

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